

THE RELATIONSHIP OF GROUP CAREER
COUNSELING AND COMPUTER-ASSISTED CAREER
GUIDANCE TO THE CAREER MATURITY OF COMMUNITY
COLLEGE STUDENTS

By

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To My Wife, Betty
For the Sustenance Provided
By Your Faith and Love

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Abstract of Dissertation Presented to the Graduate Council
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By

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Over the past few years there has been, among educators, a growing realization of the need to assist students more effectively in their career development. As a consequence, a number of new techniques have emerged to aid counselors with their career development objectives. Two innovative programs designed to facilitate career development of college students are the System of Interactive Guidance and Information (SIGI), a computer program developed by the Educational Testing Service, and the Awareness of Career Decision Making (ACADEM), a group counseling activity developed by Dr. Richard H. Johnson, presently at Southern Illinois University.

One method of determining the value of these activities was to study the relationship each had to any change in career maturity. Researchers have relied on career

maturity indices as a measure of one's relative career development, and several investigators have employed Crites' Career Maturity Inventory (CMI) to study the effects of various guidance programs on the career maturity of participants. A second method of assessing the merit of each activity was to ask students involved to evaluate the experience, indicating their perceptions and attitudes, after completing the program.

A total of 97 community college students enrolled in nine sections of a behavioral science course were subjects for the investigation. Three sections completed the SIGI activity, three sections completed the ACADEM activity, and three sections served as a common control group. The SIGI or ACADEM activities were the career units in the participating behavioral science courses. The control group did not have a career unit until after the posttest was administered. During the three weeks the students participated in the SIGI program, there were class discussions where the counselor/instructor used the Counselor's Handbook for SIGI as a guide.

The research questions which the study sought to answer were: (1) What is the relationship between students' scores on the CMI Attitude Scale and participation in the SIGI or ACADEM program? (2) What relationship do the variables of age, sex and decision on an occupation have to

career maturity scores of students who have participated in the SIGI or ACADEM programs? (3) What are the reactions of students to their experience with SIGI or ACADEM?

It was found that the SIGI program does appear to relate significantly to students' career maturity attitude scores while the ACADEM program does not. The variables of sex, age, and decision on an occupation do not relate to career maturity attitudes, as measured by the CMI Attitude Scale. The results of a posttest questionnaire indicated that both SIGI and ACADEM students perceived their experience positively.

The facts that the investigator took an active role in the study and that only one dimension of the career maturity construct was measured were discussed as possible limitations of the study. The findings suggest that further research on SIGI and ACADEM is warranted. In particular, it would be interesting to study how the programs relate to outcome variables other than career maturity. Also, research should be undertaken investigating what effects the programs would have on students who participate as a result of their own interest rather than as a class requirement.

CHAPTER I

INTRODUCTION

Career education has emerged over the past decade as a major movement influencing the guidance and counseling profession. Two innovative techniques which have been developed for use in career education are group career counseling and computer assisted guidance in career exploration. Student personnel administrators and counselors are faced with decisions about the effectiveness of the techniques as well as the best ways to use them in career guidance services.

Group counseling generally has been accepted by counselors as an appropriate intervention technique for facilitating client growth. Counselors have used this technique in aiding underachievers, developing greater self and other awareness, and assisting students in their career development. Over the past few years several group career counseling activities have developed which are structured in such a manner that they can be replicated. The Awareness of Career Decision-Making (ACADEM) (Johnson, 1973) is one of these. In this activity, the counselor

follows a programmed text as a guide in advancing students from one phase to the next. Students are given tasks which call for career related thinking and for discussion with other group members. The group becomes a means of aiding students to reflect and to gain feedback. Tasks are presented in a developmental manner so that group process is taken into consideration.

While there has been almost universal acceptance of group counseling, many counselors have resisted the use of computers as a career guidance technique. Super (1970) identified four reasons for such resistance:

1. The counselor's non-mathematical orientation in juxtaposition to the computer's complexity.
2. The computer's accuracy in contrast to the counselor's fallibility.
3. The possibility that the computer will diminish the counselor's autonomy in scheduling his own time.
4. The computer system's apparent deterministic character. (Super, 1970, p. 113)

It has been suggested that there are some areas where the computer can be more effective and efficient than counselors: (1) printing schedules; (2) providing information on jobs, occupations, and colleges; and (3) performing statistical functions. Consequently, Super (1970) has stated that counselors should learn to use the computer as a guidance assistance technique so that they can be freed to concentrate on other areas of human need.

Recently, a number of computer programs have been developed which make it possible for the student to interact with the computer in a way similar to the interaction between a student and a counselor. It is the intent of these programs to aid the student in arriving at conclusions related to a career (Super, 1970). The student has direct access to the computer and controls the interaction through the use of a cathode-ray tube similar to a television screen and a computer terminal similar to a typewriter. By punching keys, the student may ask questions of the computer, and answers flash on the screen. Similarly, the computer "asks" the student questions about his values, interests, and abilities. Through this interaction, the student, theoretically, learns more, not only about the decision-making process but also about himself and careers, thus allowing him to integrate this knowledge in making educational and life decisions.

One such computer-based program is the System of Interactive Guidance and Information (SIGI) developed by the Educational Testing Service. SIGI is designed to aid community college students in exploring their career values, deciding on educational and vocational fields, and making plans for implementing their decisions.

There are a number of similarities between the computer programs and the replicable group counseling

activities, mentioned above. Both are structured to lead the student through a series of systematic tasks and both have the same goal of aiding students in their career development. The computer program and the counselor who is using ACADEM follow a prepared format and do not stray away from the steps which are built into the techniques. Finally, both the computer and group counseling have been encouraged for use because of the time saving potential for the counselor. The major difference between the two is that the computer is based on terminal-interaction while the group counseling activity is based on human-interaction.

Rationale and Purpose of the Study

With two new career development techniques, SIGI and ACADEM, at their disposal, student personnel administrators and counselors are in need of information on the value of each. The major purpose of this study was to determine the relationship each technique has to the development of career maturity in community college students. A secondary and related purpose was to assess student reactions to their experience with SIGI or ACADEM. Such information should aid counselors in choosing the activity which is most suitable to their career development objectives. Additionally, this study provides counselors with information on how students might react to the SIGI or

ACADEM experience. The findings of the study also should aid student personnel administrators in determining cost effectiveness information for accountability and budgeting purposes.

Specifically, this study was designed to provide answers to the following questions:

1. Does participation in SIGI produce changes in students' career maturity?
2. Does participation in ACADEM produce changes in students' career maturity?
3. What are the differences, if any, in career maturity between students involved in SIGI and students involved in ACADEM?
4. What relationship do the variables of sex, age, and decidedness on an occupation have to the development of career maturity among students participating in SIGI or ACADEM?
5. What are student reactions to the SIGI or ACADEM experience?

Definitions of Terms Used in the Study

For the purpose of this study, the following definitions were applied:

Career development. The life-long continuous process of implementing one's self-concept within the context of the world of work and society. This process occurs in stages and is a function of the individual's interest, attitudes, abilities, values and behavior patterns, plus characteristics of his environment.

Career maturity. The attained point in a person's theoretically defined career development as compared to his peers. This concept was originally referred to as vocational maturity. The investigator uses the word "career" rather than "vocational." The only exception to this is when a particular statement is being quoted and the word "vocational" is used.

Group career counseling. The counseling activity which promotes interaction among two or more participants and the counselor for the purpose of aiding the participant in a better and deeper understanding of himself in relation to the world of work.

CHAPTER II

REVIEW OF THE LITERATURE

This study sought to determine the relationship of a computer-assisted guidance technique (SIGI) and a group career counseling technique (ACADEM) to the development of career maturity in community college students. In order to provide a background, the present chapter includes a review of the literature on (1) career maturity, (2) group career counseling, (3) the ACADEM group career counseling program, (4) computer-assisted guidance, and (5) the SIGI career exploration program. A summary of the literature is presented.

Career Maturity

Origin and Definition

Career maturity as a concept and proposed construct evolved from the staff of Super's Career Pattern Study (Tolbert, 1974). Super's theory of career development is based on an individual's striving to implement his self-concept. This process occurs through five developmental

stages: (1) the crystallization stage (ages 14-18), (2) the specification stage (ages 18-21), (3) the implementation stage (ages 21-24), (4) the stabilization stage (ages 25-35), and (5) the consolidation stage (ages 35-50). Each stage is marked by certain growth and developmental tasks which need to be accomplished before further growth can occur. Certain attitudes and behaviors are related to the tasks within each stage. An example of some of the attitudes and behaviors of the specification stage are: (1) awareness of need to specify, (2) use of resources in specification, (3) differentiation of interests and values, (4) specification of vocational preference, (5) possession of information concerning the preferred occupation, and (6) confidence in specific preferences (Super, 1963).

Super felt that an individual's rate and progress in meeting developmental tasks might be an indicator of his career maturity. He, therefore, defined career maturity as "the degree of development from exploration to decline" (Super, 1955, p. 153). Accordingly, Super assessed career maturity from two frames of reference. The first is by comparing an individual's actual life stage and the developmental tasks with which he is involved with those expected at his particular chronological age. The closer the relationship between the two, the greater the

individual's career maturity. The second is studying the methods one uses in handling vocational tasks with the methods of others handling the same tasks. Super, therefore, uses as his reference point for defining career maturity, the individual's age and coping behaviors.

Crites, a former member of the staff of the Career Pattern Study, criticized Super's definition on the grounds that a person might be considered mature by one definition and immature by another. Crites' definition combined the two frames of reference to give a measure of both degree and rate of career maturity.

Degree refers to the maturity of an individual's vocational behavior and that of the oldest individual in his vocational life stage. In contrast, rate of vocational development refers to the maturity of an individual's vocational behavior in comparison with that of his own age groups. (Crites, 1961, p. 259)

Crites' definition of career maturity appears to be the most widely accepted and is the one used for this study. Other definitions have been posed by various researchers (Bartlett, 1971; Westbrook & Cunningham, 1970; Norton, 1970).

Indices of Career Maturity

Just as several definitions have been proposed for career maturity, there also have been several indices which various researchers have conceptualized as relating to

career maturity. These were identified initially and discussed by Super (1955), who specified five major dimensions of career maturity during adolescence: (1) orientation to vocational choice, (2) information and planning, (3) consistency of vocational preferences, (4) crystallization of traits, and (5) wisdom of vocational preferences. Crites (1965) elaborated upon the orientation, information and crystallization dimensions and proposed that they be studied further for the purpose of "determining more completely career choice competencies and career choice attitudes" (Crites, 1974, p. 27).

Gribbons and Lohnes (1968) developed eight scales to assess career maturity for career planning: factors in curriculum choice, factors in occupational choice, interests, values, independence of choice, verbalized strengths and weaknesses, accuracy of self-appraisal, and evidence for self-rating. Westbrook and Parry-Hall (1973) specified six indices of cognitive career maturity: (1) knowledge of occupations available in various work fields; (2) ability to choose most realistic occupations, considering one's known abilities, interests and values; (3) knowledge of work schedules, income, and job location; (4) knowledge of amount of education required for an occupation; (5) knowledge of abilities, interests, and values generally required for various occupations; and (6) knowledge of duties performed in a wide range of occupations.

Bartlett (1971) found that individuals with high career maturity scores were more self-confident, achievement oriented, forceful, independent, and less self-critical in their relationships with others. He indicated that the implications of these results suggest that if the counselor is desirous of facilitating the counselee's career maturity, the counselor should aid with the personality development, and not just the isolated career development of the counselee.

Measurement of Career Maturity

The measurement of career maturity has been a challenge to researchers. Instruments based on the previously mentioned indices have been designed by several vocational specialists, Super (1973), Sheppard (1971), Forrest (1971), Crites (1965), Gribbons and Lohnes (1968) and Westbrook and Cunningham (1970). Crites (1974) indicated that special problems occur when any attempt is made to define operational variables presumed to change systematically over time. "Foremost among these is the problem of formulating a measurement model which incorporates the merits of established approaches to test construction yet circumvents the shortcomings" (Crites, 1974, p. 25).

A career maturity model of four dimensions has been proposed by Crites (1974): consistency of career

choices, realism of career choice, career choice competencies, and career choice attitudes. The first, consistency of career choice, includes consistency over time and within levels of occupations. The second, realism, involves the variables of one's abilities, interests, personality and social class. The third, career choice competencies, includes problem solving, planning occupational information, self-appraisal, and goal selection. The fourth dimension of Crites' model is career choice attitudes, composed of the conception, preference, independence, orientation, and involvement variables.

Crites' model has provided a frame of reference for research. It has been used as a guide in the work of the Career Pattern Study, the Vocational Development Project, and the Center for Occupational Education in studies of cognitive career maturity (Crites, 1974). Super (1969) proposed that once all the variables in the model had been measured, a career maturity profile could be constructed which could be used to describe what Crites (1961) has defined as degree and rate of career development. From such a career maturity profile, diagnostic inferences could be drawn concerning an individual's problems in career-decision making.

Even though a substantive model exists for the measurement of career maturity, there is a psychometric

problem in attaining an accurate measurement. The problem is one of constructing scales whose items (1) are related to time and (2) are comparable from one time unit to another. Given these specifications, it would be possible to establish norms on the incidence of career-mature behaviors within and between age and/or grade grouping (Crites, 1974, p. 29).

Career maturity as a construct is still in the developmental stages. The problems which have been mentioned are being investigated, but more study is needed in defining the career maturity construct and in developing validated instruments for measurement (Crites, 1971; Westbrook & Cunningham, 1970).

Group Career Counseling

The Need

Much has been written over the past few years on the need for assisting students with career decision-making. Devine (1974) found that 64% of incoming freshmen at the University of Florida had not made a definite choice of an academic major. Similarly, Myers (1972), after analyzing a number of studies, found that 20% of entering college freshmen could not express a vocational choice. In a related study, Astin and Panos (1969) found that of 36,000

college freshmen at 246 institutions, three-fourths changed their career plans after entering college. Ginn (1974) found that 30% of Harvard University's class of 1972 had no career plans. Gaymer (1972), after studying the predicaments and frustrations of college students who feel that they must decide "now" what they are going to do the rest of their lives, recommended that a major role of the counselor is to assist students in understanding that a decision "now" is just one of many they will make throughout their lives. In a recent survey of two-year college students, Wollman (1975) found that 63% were either not at all satisfied with the way they had planned their occupational choice or were fairly satisfied but felt they still needed some planning. Sixty-eight percent reported that they would participate in a career guidance program if it were offered.

Burck (1971) and Korn (1968) studied the nature of the problems students face in choosing a career. They concluded that many students in their study experienced pressure to make decisions but were limited by resources and opportunities available. Specifically, individuals are confronted with a large number of choices but little experience in the world of work and little knowledge of occupations.

The ongoing nature of career decision-making and the importance of developing decision-making skills seem

particularly relevant for the future. Toffler (1970) has outlined the problems of "future shock" and the need for the individual to be capable of handling a greater number of decisions within a shorter span of time. Recent writings on career development have emphasized the concept of life development rather than career development (Gysbers & Moore, 1975). The emphasis here is that it is time to go beyond the work-oriented barrier which is inherent in some of the current definitions of career development and to focus on all aspects of an individual's life (1975, p. 648). Since the individual is involved throughout life in a process of decision-making and new learning, the focus should be on assisting in decision-making and learning how to learn.

Definition

Mahler's (1969) definition of group counseling emphasizes these key points: (1) problems with developmental tasks are the members' main concerns, (2) group interaction is the process for achieving goals, (3) climate within the group can be such as to permit the lowering of defenses so that feelings can be revealed and explored, and (4) self-understanding and self-acceptance are the goals. Tolbert (1974) indicated some modification in group career counseling as opposed to group counseling. He listed the

following assumptions as essential elements of group career counseling: (1) career planning and decision-making require input about occupations; (2) accurate data about the self, i.e., about aptitudes, preferences, achievements, and values, are needed; and (3) the process offers opportunities to explore personal meaning, identify and examine subjective aspects of the self, get feedback from others, and try on roles (Tolbert, 1974, p. 179).

A synthesis of group counseling and group career counseling seems to emphasize an environment of acceptance and openness where individuals have the freedom and opportunity to try out and integrate cognitive information about themselves and the world of work. Within this environment, decision-making skills are practiced and developed so that the actual implementation of decisions can take place.

Decision-Making

The learning of decision-making skills is considered by most of the theorists in career counseling as a major ingredient in career group counseling (Tiedeman, 1975). Group techniques that combine learning and decision-making concepts have been shown to stimulate occupational information-seeking behavior (Krumboltz & Thoreson, 1964). Gelatt, Varenhorst, and Carey (1972) emphasized a

decision-making strategy built around the following steps:

1. Purpose. The counselee needs to make a decision. He has at least two options.
2. Information. Information about the options is identified or obtained.
3. Possibilities. All of the possible courses of action are identified.
4. Results possible. Possible consequences of each alternative are examined.
5. Results probable. The likelihood of each consequence is predicted.
6. Values. The personal desirability of each consequence is assessed.
7. Decision. A choice is made. It may be terminal or investigatory.
8. Feedback and Evaluation. The counselee judges the suitability of his decision and the counselor evaluates the effectiveness of his help. (1974, p. 165)

A number of career group counseling programs utilize decision-making concepts to facilitate career development and improve decision-making (Hansen, 1970; Chick, 1970; Martin, 1970). The emphasis is on the teaching of decision-making skills as opposed to the making of an immediate decision (Harris-Bowlsbey, 1975).

Guidelines and Models of Group Career Counseling

Tolbert (1974) indicated a series of steps for conducting a group career counseling session which incorporated decision-making skill development. He emphasized that structure should be present and the counselor should have

a specific plan for each session. Acceptance, positive regard, and understanding should characterize the climate of the group. Reflection and clarification are common responses of the counselor. A decision-making orientation should occur early in the process with an appropriate decision-making model used as a teaching tool. Also early in the group process, participants should be provided with a folder of information from their cumulative record. This step is useful in explaining the meaning of test scores and other data. A suggested later activity in the group process is to have group members pursue career learning options outside the group. Examples of options are interviewing prospective employers, visiting a possible place of employment, and collecting information on a particular career of interest. Feedback, predictions, and plans of action characterize the last stage of Tolbert's model.

Hewer (1968) developed a group career counseling program at the University of Minnesota which utilized a case conference approach in which counselees described their situations, plans, and difficulties. Other group members were expected to suggest courses of action, predict success, estimate satisfactions, and generally serve as helpers.

One example of a combination of group counseling and decision-making is a group career counseling plan,

Vocational Choice Group Counseling, developed by Sprague and Strong (1970). Nine one-hour weekly meetings are established around the following content: (1) introductions, purpose of group, and a discussion of vocational problems and decision-making; (2) discussion of tests and inventory results; and (3) individual case presentations, discussion, and interaction. Participants are given work sheets on decision-making and related literature for study and background information. Quick decisions are not expected but some progress toward goals is encouraged.

A group career counseling activity which has been utilized in a number of schools and colleges over the past three years is the Vocational Exploration Group (VEG) (Daane, 1971). This activity is a structured process which seeks to facilitate exploration of both world-of-work and self within a small group context (four to six members). The experience is designed to "free up" creative thinking, increase personal motivation, and widen the participants' pool of occupational awareness. The teaching of decision-making is not a stated objective of the VEG.

Research on Group Career Counseling

Comparative studies with individual counseling.

There have been a number of studies which have compared group career counseling with individual career counseling.

Bilowsky (1953) found that there were no significant differences between individual and group counseling in increasing realism of vocational goals among groups of students in a senior high school. For a population limited to college students of one sex, Hoyt (1955) concluded that career guidance, by either the individual or group method, is effective in producing positive changes on relevant criteria. He further concluded that there were no differences between the two methods in working with career-undecided students. According to the criteria adopted by Hoyt, effective outcomes were attained by both group procedures and by the more traditional individual approach. In a research study similar to Hoyt's (1955), Hower (1968) found no significant difference in accomplishment between individual and group counseling.

Wright (1963) found very few postcounseling differences between individual counseling and group counseling in test interpretation interviews. Similarly, in a study of three methods of test interpretation, Folds and Gazda (1966) found that although individual counseling was more satisfying to the client, there was, again, no difference in effectiveness between individual and group methods.

Krumboltz and Thoreson (1964) attempted to produce information-seeking behavior in 192 eleventh graders through

four treatments applied to both individual and group counseling. The four treatments were verbal reinforcement counseling, model reinforcement counseling, films and discussion, and no treatment. No differences were found between individual and group counseling. However, the results indicated that there were significant differences among the treatments in producing information-seeking behavior. Model reinforcement produced the most results followed by verbal reinforcement, films, and control. Some differences related to sex were found. Model reinforcement was more effective than verbal reinforcement counseling for males; both types were effective for females.

Das (1965) found no significant differences on the Vocational Development Inventory among a group of ninth grade potential dropouts experiencing three to five sessions of individual counseling, group counseling or no counseling. Tarrier (1968), in a study of different career counseling methods, found no difference between small group counseling and individual counseling.

Hanley (1970) studied individual and group counseling with high school underachievers. Thirty-six tenth and eleventh grade underachievers participated either in individual counseling, six sessions of group counseling, or no treatment. Group sessions involved counselor interaction plus structured discussion concerning values and

attitudes about vocations. Using a pretest, posttest, and a six weeks delayed posttest design, Hanley found no significant differences between scores derived from Vocational Development Inventory, and a self-concept scale.

Hanson and Sander (1973) studied differential effects of individual and group counseling among eleventh and twelfth grade boys. The boys were classified as either "overshooters" or "undershooters" in realism of vocational choice. Thirty subjects participated in either an average of three individual counseling sessions involving flexible discussion or four to six group counseling sessions structured around case study presentations by group members. "Overshooters" in group counseling and "undershooters" in individual counseling showed significantly more realism than control subjects. In an experimental study of community college students, Adams (1971) found that a group career counseling program was more effective than individual counseling in helping entering students maintain higher grade point averages, gain greater satisfaction with the college program, achieve greater certainty about completing their program and in making more appropriate educational-vocational choices.

Pinkney (1974) investigated not only format (individual and group) for vocational counseling but also styles (structured and unstructured). The four treatments

studies were structured group, structured individual, non-structured group, and nonstructured individual career counseling. For counseling effectiveness of total change in expressed concern, clients in the group treatments had more change in expressed concern than did clients in the individual treatments, and the structured group treatment produced more change than did the structured individual treatment.

Many authors recommend group counseling, both for its economy (Hoppock, 1967; Strang, 1970) and for the opportunity for client interaction and growth that a group can provide (Blocher, 1973; Mathewson, 1970; Strang, 1970; Traxler, 1970; Varenhorst, 1968; Wrenn, 1973). The group context can provide for greater peer interaction (Strang, 1970; Traxler, 1970), preparation for further counseling (Bennett, 1964), greater verbal interaction, a legitimate practice ground for new behaviors, a variety of models, and greater opportunities for the counselor to reinforce appropriate career behaviors (Varenhorst, 1968).

Comparative studies with other methodologies. There have been a few studies which compared group career counseling with methodologies other than individual counseling. Westbrook and Cunningham (1970) investigated three different group career counseling methods and were able to draw some conclusions regarding the assigning of students to a

particular approach. The three methods were (1) test interpretation-occupational information, (2) occupational information-test interpretation, and (3) case study. The stated objective of each treatment was to aid first semester college freshmen to reach individually selected goals in career development. Westbrook concluded that each group counseling approach has merit for use with college students; however, the different learning rates related to sex and time suggested that care should be taken to place subjects by sex and consider the levels of career development before determining the type of group placement.

For male college students, Biersdorf (1958) compared a limited group counseling experience with an expanded group experience. The short group experience consisted of test interpretation plus discussion. Significant differences in favor of the expanded group were found only in decreased frequency of expressed vocational problems. Directional differences in favor of the expanded group were found for certainty of choice, appropriateness of choice, suitability of choice in terms of appropriateness, and degree of concern.

In a study designed to promote information-seeking behavior, Nolan (1974) compared Holland's Self-Directed Search with group career counseling. The sample used was 90 soon-to-be discharged military personnel who ranged in

age from 21 to 26. The groups met for a total of 90 minutes and followed the structured format of test interpretation (Strong Interest Blank and General Aptitude Test Battery) and career exploration. Nolan concluded that group career counseling was more effective than the Self Directed Search program in promoting frequency of information-seeking behavior, but that neither treatment was more effective in promoting a variety of information-seeking behavior or realism of expressed career choice.

Martin (1970) compared the effect of vocational training and group counseling on selected career attitudes of 175 adult women. The attitude scale of the Vocational Development Inventory was used. At the conclusion of a four month training period, no significant differences were found in growth in career maturity. Neither vocational training nor group counseling caused change in the selected vocational attitudes within the beginning training period, although all groups grew in "self-to-vocation congruence." Group counseling appeared to be most useful as a supportive, encouraging factor in adjusting to immediate training requirements and in continuing toward career preparation.

Two studies have been reported which compared programmed instruction with group career counseling. Lauver (1966) investigated the effects of three treatments on the values and choices in career planning of tenth and

eleventh graders. The treatments were: (1) a programmed text, (2) a small group experience focusing on case studies illustrating aspects of career planning, and (3) a combination of the programmed text and group experience. He found no differences between group or grade levels.

Graff, Danish, and Austin (1972) compared group counseling, individual counseling, and programmed instruction with college freshmen and sophomores on their self-reported perceptions of degree of assistance. All three treatments produced significantly higher satisfaction of perceived assistance than controls. The programmed instruction was perceived as more helpful than individual or group counseling. The authors concluded that "the results are encouraging enough to suggest that further studies evaluating automated approaches be conducted in more generalized populations and with other criteria variables" (Graff, Danish, & Austin, 1972, p. 228). They further suggested that "much of educational-vocational counseling could be programmed, automated, or otherwise handled more efficiently by mechanical or self-help devices" (1972, p. 228).

This review provides support for career group counseling as an effective means of achieving career development criteria. However, there is limited information to aid a counselor in determining which method(s) most assist clients and at what time and with what people. One of the

major reasons for this difficulty is that research in group career counseling suffers from many of the shortcomings of group counseling research in general (Gazda, 1971). Lack of treatment replicability, small or extreme samples, and few multivariate studies are common problems. However, some studies have shown signs of the efficacy of group career counseling in facilitating career maturity in students.

Career information-seeking behavior. Several studies have focused on the facilitation of career information-seeking behavior. Behavioral group counseling techniques have proved to be successful methods. Aiken (1970) reported a significant relationship between the counseling procedure used and the change in career information-seeking responses. The study was concerned with the effects of group reinforcement counseling on the frequency of career information-seeking behavior for college freshmen and sophomore males. Group reinforcement counseling was defined as any verbal or nonverbal positive reinforcement of a stated indication that the clients had sought, were seeking, or planned to seek information relevant to their major or career. In 1973, Aiken and Johnston studied the effects of group reinforcement counseling on the frequency of career information-seeking behaviors for 94 college freshmen and sophomore

males. Crites' Career Maturity Inventory was used to identify career maturity-immaturity and Holland's Vocational Preference Inventory was used to identify consistent-inconsistent patterns. Both career mature and immature subjects tended to increase in exploratory behavior during treatment.

Krieger (1970) was able to increase career planning behavior and career planning strategies with mentally retarded adolescents. The treatment used was group career counseling with the content based on modeling, plus reinforcement counseling.

Studies have provided support for the value of social modeling in increasing students' information-seeking behaviors (Thoreson & Krumboltz, 1968; Thoreson, Krumboltz, & Varenhorst, 1967). Hamilton (1969) discovered that group social modeling plus participation in group counseling was found to promote significantly more knowledge of and ability to stimulate career decision-making than either modeling or participation in group counseling by themselves. Krumboltz and Schoreder (1965) studied the effects of both reinforcement and social modeling tapes with 54 eleventh graders. One group participated in group discussion in which the leader verbally or nonverbally reinforced information-seeking responses of members. A second group participated in the same type

of group discussion with reinforcement and also listened to a male model discussing the same topics at the beginning of the sessions. Both groups showed significantly more information-seeking behaviors than a control group. Reinforcement discussion was more effective than no treatment for females but not for males. Reinforcement plus taped modeling was more effective for males but not females.

In a study using the Vocational Exploration Group (VEG), Bergland and Lundquist (1974) were not able to increase information-seeking behaviors. However, the VEG participants were able to identify significantly more satisfiers obtainable from jobs and were more proficient at differentiating among jobs on the basis of (1) interests and (2) skills used in jobs than students in the control group.

Career maturity, self-concept, and attitude. There have been a number of studies where group career counseling has been used as the intervention to increase career maturity, self-concept and attitudes toward career and jobs. In a study designed to determine the effects of group counseling on the career maturity of ninth graders, Nichol (1969) found no significant differences between group counseling and the control group, as measured by a structured interview and the Attitude Scale of the Career Maturity Inventory. The treatment period was eight weeks in duration. The group sessions were not described.

Jackson (1971) found positive movement but no significant differences, as measured by the Career Maturity Inventory or a career maturity scale, between a control group and subjects participating in small group counseling. The treatment was not defined in this study beyond "group counseling." Gilliland (1966) was able to increase career maturity, academic achievement and occupational aspiration in 14 Negro adolescents participating in group counseling for 36 weeks. The results were positive but the time investment would be a problem for a practicing counselor. In a short-term study (six weeks), Flake, Roach, and Stenning (1975) were able to significantly increase career maturity attitude scores of tenth grade students. The researchers concluded that the results indicated that career maturity as a developmental process can be measured and facilitated through counseling.

Catron (1966) examined changes in self, ideal self, and "ordinary person" perceptions of high school students after treating the students to a College and Career Planning Group. The treatment took place in small groups and lasted for 14 one and one-half hour sessions. Fifty-four students were involved in test interpretation, listening to tapes and free discussion. Subjects' perceptions of self changed significantly to more positive images although ideal-self

and "ordinary person" perceptions were unchanged. Similarly, Garrison (1972) reported that career development counseling over an eight-week period assisted college students to attain a positive change in their self-concept.

Grubbs (1971) compared 28 ninth grade students who experienced the VEG to 28 ninth grade students who visited job sites, listened to job topic speakers, visited libraries, and wrote career papers. On an attitude toward-job questionnaire, VEG participants made significant gains from pre-to-posttesting in self-knowledge, self-assessment, and attitudes toward jobs. A classroom activity group used as a control made no significant gains. The instrument used was a 15-item self-made questionnaire. In a study in which the VEG was used with potential dropouts, Hawxhurst (1973) found no significant changes. The Attitude Scale of the Career Maturity Inventory was the instrument used in the study.

While the research results are mixed, there is evidence which supports group career counseling as a means of increasing career maturity and self-concept in students. However, because few of the group counseling treatments were defined, it is difficult to know which approaches and techniques are of most value.

Work values, realism, and self-exploration. Thomas (1974) examined the effect of group counseling in changing

work values of college students. The group studied was divided into undeclared and declared majors. Results demonstrated there were no significant differences in the work values of either group. Davis (1969) investigated whether group counseling for career choice reduced the magnitude of the difference between career aspiration and career expectation and if there was any relationship between the number of hours students spent in group counseling and their realism of career choice. Results indicated that realism between career aspirations and career expectations increased as the number of hours of group counseling increased. Anderson and Binnie (1971) investigated the effects of a group career counseling program designed to assist community college students in examining and exploring their interests and aptitudes as they related to personal aspirations and plans. Over half of the subjects indicated a different occupational choice on the posttest than they had previously chosen on a pretest. There was also a greater commitment to this new choice. Approximately 25% indicated on the posttest that they planned to complete less education than they had indicated on a pretest and another fourth revealed that they planned to complete a higher level of education than they had previously indicated.

Summary

Group methods to facilitate career development of students seem to be an accepted component of guidance practice. Outcome research has produced mixed results even where the treatment was reasonably similar. Research studies are diverse in design and group procedures often are too skimpily described to be replicable in other settings. Gazda (1968) indicated that most studies do not clearly present the nature of the treatment process. In her review of group counseling research, Cross (1975) stressed that a coherent body of knowledge on effective group career counseling procedures for specific populations is not available to the practicing counselor. Awareness of Career Decision-Making (ACADEM) is a replicable group counseling activity designed specifically for college students. There is no research information on this activity.

Awareness of Career Decision-Making

Awareness of Career Decision-Making (ACADEM) is a group career counseling program developed by Johnson (1973). It consists of "a program of activities that helps participants understand the educational, occupational, and personal aspects of life so that their decision-making will be smooth and rewarding" (Johnson, 1973, p. 2).

ACADEM was developed around the theory that career decision-making is much more than selecting a job at the end of a college experience. Decision-making is viewed as a process that involves educational, occupational, and personal aspects of life. Specifically, the author states:

Decision making might be compared to a motion picture which consists of thousands of single, still pictures put together in sequence. As the movement of the film is accelerated through the projector, you do not see the start and end of each individual still picture. Rather, each still picture blends into the next showing smooth movement—a flowing process. Indeed, the whole is greater than the sum of its parts. Career decision making is much the same. Thousands of life decisions flow together showing the movement of a person's life. If the thousands of decisions are in harmony, the movement will be smooth and rewarding. (Johnson, 1973, p. 1)

ACADEM, therefore, is meant to be a teaching tool and not a crisis-oriented and problem-centered approach. It is designed to aid students to act upon their curriculum and course development. Counselors using ACADEM are anticipating student need in career decision-making rather than waiting until students are confronted with an immediate situation, such as choosing a major or finding a job.

ACADEM involves six stages with specific tasks associated with each stage: (1) Personal Assessment: the task for the student during this stage is to conduct an assessment of educational-occupational interests and abilities as well as values which can provide an individual with

a set of personal criteria by which to evaluate occupations; (2) Occupational Exploration: this calls for the student to explore a wide range of occupational groups and evaluate how each group fits his personal criteria; (3) Tentative Occupational Choice: the task is to choose an occupational area which provides the greatest probability of success and satisfaction; (4) Educational Exploration: this involves the exploration of college majors which will facilitate entry into the chosen occupational area, taking into account personal interests and academic ability; (5) Tentative Educational Choice: the task is to choose a college major appropriate to an occupational choice and to choose one which has the greatest probability of success and satisfaction; and (6) Implementation of Choices: the student task is to "try out" experiences such as courses and part-time or volunteer work to test the adequacy and reality of the choices. Each experience becomes new datum from which previously made decisions may be modified (Johnson, 1973).

There are nine activities which reflect the tasks associated with each stage. The activities were designed to be conducted in groups as large as 10 and as small as six. The activities and associated goals are:

<u>ACTIVITY</u>	<u>GOAL</u>
Introduction	Understanding of the process of career decision-making.
The Me Tree	Understanding of abilities and interests.
The Millionaire	Understanding of values.
Occupation Preference Sort	Understanding of personal criteria for selecting an occupation.
NANO (Name an Occupation)	Understanding of occupational areas.
Friendly Persuasion I	Understanding of personal reasons for choosing an occupational area.
GAM (Group a Major)	Understanding of educational alternatives.
Friendly Persuasion II	Understanding of personal reasons for choosing a major field of study.
Next Step	Understanding of strengths.

ACADEM was designed for use as a unit in a career development class or some type of orientation course for beginning college students. It is flexible and can be easily adapted to any institution of higher education (Johnson, 1973). The activities require approximately 50 minutes to complete. Thus, the entire group process is about seven and one-half hours. Each activity is highly structured and procedures are written in detail within the group leader's manual (Johnson, 1973).

ACADEM has not been researched in an in-depth manner. It has been used in a number of colleges and evaluated from the standpoint of student satisfaction. Dr. Richard Sharf (1974), a counseling psychologist at the University of Delaware, in a letter to the developer of ACADEM, Dr. Richard Johnson, wrote the following: "We were very pleased with ACADEM. The students responded quite well to the exercises. We feel it has been successful and we plan to use it again" (1974, p. 1).

In a similar letter to Dr. Johnson, Dea Forney (1974), Associate Director of Career Services at Allegheny College, wrote "I am very pleased with the ACADEM program. I have found it an adaptable sequence. The activities were well received by the students" (1974, p. 1). No studies were reported in the literature which had used ACADEM with community college students.

Computer-Assisted Guidance

The effective utilization of present technology to solve many social problems has been the subject of much debate during the last decade. Much has been written regarding the ability of America to place a man on the moon but inability to accomplish social goals (Walz, 1970). Guidance and counseling, as a profession committed to the

social goals of human dignity and freedom, appears to have an important role to play in utilizing effectively technology without dehumanizing man. The manner which professional counselors choose to use technology can have an impact on our society and may provide meaningful leadership for other professions. The potential value of the computer is well recognized as it has become an integral part of our lives. Its arrival has created both interest and controversy within the counseling profession. Possibly because of the information transmittal needs, a number of computer programs have been developed for use in career guidance (Super, 1970).

Wrenn (1970) discussed the role of the counselor in relation to the computer. He warned the counseling profession not to take computers lightly. He saw a need for the counselor to rethink his role and "know the element of his essential humanness that no computer can match" (1970, p. 37). Wrenn feared the danger of nonuse of the computer in areas where it can be of value (information-dispensing) and overuse by some counselors who "find the computer assistant too comfortable in depending on it much as they did on tests in the 1930's and 1940's" (1970, p. 38).

Devine (1975), in his review of the literature on current career counseling practices, mentioned that many higher education counselors view career counseling as

boring. This was supported by a Graff and Rague (1974) survey of college counseling centers where a lack of emphasis on career counseling was found. Counselors with negative attitudes toward career counseling might easily allow the computer to take over all their work and responsibility for career guidance.

A related concern which counselors must face is how they can mesh their skills with computers. What are the starting and ending points of computer-assisted guidance? Where does the counselor take over and the computer leave off? Harris (1970) stated:

If you define counseling as a one-to-one or group relationship in which an individual becomes capable of understanding his assets and abilities and how best to actualize these assets, the computer cannot, and should not in my opinion, counsel. This type of counseling demands and deserves the highest and best of human communication. (1970a, p. 163)

Super (1970) viewed the computer as "just another library, a terminal as just another book with a good table of contents, a good index, and programmed interaction to insure good personal use of data" (1970, p. 106). The counselor can aid the student in synthesizing information for the purpose of carrying out plans. The counselor is a guide, therefore, to implementation rather than exploration.

Tiedeman (1975) viewed a greater need for counselors and computers in the future. He felt that we must perceive

the technological structures as helpful in order to make sense of the vast array of information in this society. "If we do not do this we will never reach the stage of technological development where we dream beyond what we are now experiencing and be in a position to carry out that dream" (1975, p. 389).

It is obvious that there is a need for computers in any profession which attempts to meet diverse human needs and that counselors need to give thought to how they can best utilize computers. Before this can take place, the types of computers available and their capabilities must be known.

Types of Computer-Based Guidance Programs

There are two types of computer-based guidance programs: test reporting and inquiry (Miller & Tiedeman, 1974). There are many commercial firms which offer test reporting services. Inquiry systems are of four kinds: indirect inquiry systems, direct inquiry systems without system monitoring, direct inquiry systems involving system monitoring, and direct inquiry systems involving both system and personal monitoring. The purpose of all of these is to permit inquiry concerning choices of colleges, vocational technical schools, financial aid and occupations (Miller & Tiedeman, 1974).

Indirect inquiry systems are characterized by the fact that an individual's request is held until a large group of requests is received. This delay can be for hours, days, or sometimes weeks, depending upon how volume and price are sued in buying the needed computer time. The system acts as a dictionary and/or encyclopedia. Examples of this type are several college selector systems (SELECT, MATCH, EDU-DATA) (Herr & Cramer, 1972) which furnish applicants with the names of colleges most suited to their interests, aptitudes, and abilities.

The direct inquiry system without monitoring gives a student direct access to a data file and provides the user with lists based on his questioning. The College System of Interactive Learning is such a program. The fact that there is no waiting time is what differentiates this approach from the indirect inquiry system.

The direct inquiry system with monitoring provides visual capabilities and the monitoring allows the computer to keep a record of the alternatives chosen by the user. This allows for interaction and checks on consistency of decision-making. The student feeds in information and is given immediate feedback on its meaning. Examples of these systems are Loughary's (1966) Automated Counseling System (Autocoun), International Business Machine's Educational Career Exploration System (ECES), DuPage County's Computerized

Vocational Information Program (CVIS), Bartlettville Public School system's Total Guidance Information Support System (TGISS) and Educational Testing Service's System of Interactive Guidance and Information (SIGI). Harris (1972) outlines the characteristics of direct-inquiry-with-monitoring systems:

1. The counselee has immediate response to his inquiries.
2. The counselee typically uses the system at least twice.
3. The counselee may select from a variety of scripts and approaches to information.
4. The system stores prior information about counselee which is used during the exploration. The system may also store information gathered during the student's use of the system for review with the student and/or the counselor.
5. The system is designed to provide a formalized type of counseling assistance and may be used without the involvement of counselors in the process. (1972, p. 9)

The fourth type of system is the direct inquiry involving both system and personal monitoring. The Information System for Vocational Decisions (ISVD) is presently the only such program available. Developed by David Tiedeman, it allows the student to program information into the system. Tiedeman (1974) indicated that this allows for "what if" questions. In other words, the student can tell the computer of certain objectives for which he might strive. The computer then provides the student with information regarding what the consequences will

be with the achievement of each objective. Because of high cost, the system is not presently in use, although it is a model for future computer guidance programs (Harris, 1974).

There are a number of computer systems which are accessible and available to the counselor. Since the computer system being used in this study is SIGI, a direct inquiry system with monitoring, the next section discusses some of the research which has been completed on direct systems with monitoring.

Research on Computer Guidance Programs

Super (1970) and his colleagues have described computer uses and systems to various individuals and groups. He indicated that efforts with local groups, at regional meetings and even in international meetings, have met with "warm and friendly reaction, say 90%." The letters of inquiry and interest which follow these presentations are entirely positive" (1970, p. 47).

McKinlay and Adams (1971) conducted a survey of the Occupational Information System (OIS) used in Churchill, Oregon. They found that over half of the student body used it and both students and parents strongly approved. Similarly, Adams and Anderson (1971) found OIS to be an aid to the elderly in locating positions.

Laughary (1969) and his associates had 40 ninth grade students interact with both a computer-based system (AUTOCOUN) and a counselor. The experiment tested the similarity of pupil appraisal data and course decisions generated by the computer and the counselor. The aim of the project was to simulate a dialogue to the extent that students would make the same kinds of educational decisions with the computer's help as they made with that of a human counselor. The question of which produced the best results was not the purpose of the study. The results indicated that the computer agreed with the counselor on approximately 75% of the appraisal statements. On course selection and program planning, there was 95% agreement on tenth grade plans, 65% agreement on eleventh grade plans, and 53% agreement on twelfth grade plans. When the students were followed to determine what courses they actually took in the tenth grade, their actions were more similar to the counselor-generated plans than computer-generated plans. The students enjoyed both counselor and computer but were more positive about the counselor. They thought the computer system had more specific and factual information, but estimated that the counselor had a greater amount of total information. Specifically, they thought the counselor knew more about their interests and personalities. Finally, 38 out of the 40 indicated that they would like to see the computer system used in the school.

Pilato (1968) used the learning experiences then being incorporated in the ECES to evaluate the effects on a number of aspects of vocational decision-making. He gave 128 eleventh grade boys a task designed to make them more aware of their own characteristics and one that taught them more about the structure of the world of work. He found that those who had experienced both tasks generally improved in the appropriateness of their vocational preferences. In addition, students who tended to underestimate their own abilities improved in accuracy of self-knowledge by the treatment. Not all of Pilato's predictions were realized for all students. Some students did not gain at all from the tasks, either in making better vocational decisions or in learning more about themselves.

A study by Melhous (1973) tested Hershenson's (1968) hypothesis that different career counseling methods would be differentially effective for clients at different levels of readiness for career decision-making. The top 54 and the bottom 54 high school sophomores from a class of 853 were selected on the basis of their Educational Development Test scores. Those who scored high were classified as high readiness. Half of each group (highs and lows) received individual counseling; the other half interacted with CVIS. It was predicted that high readiness subjects would change more with CVIS and lows would change more with

counseling. Only the latter prediction was confirmed. The groups did not differ in satisfaction with their post treatment career choices. Findings suggested that individual counseling should be used with low readiness clients when both individual counseling and computer-assisted guidance options are available.

The System of Interactive Guidance and Information

The System of Interactive Guidance and Information (SIGI), a direct inquiry system with monitoring, is the computer-based program which was used in this study. SIGI, which is designed to help community college students make career decisions and plans, was developed at the Educational Testing Service with the help of grants from the Carnegie Corporation and the National Science Foundation. SIGI emphasizes students' values and the role such values play in making career decisions. Martin R. Katz, the developer of the theory on which SIGI is based, makes the assumption that values provide the dimensions along which students analyze their own desires and along which they construe occupational characteristics. Therefore, throughout the five subsections of SIGI, the values of the student are the unifying thread and are the basis on which student inputs are made.

The main purposes of the program are "to increase students' freedom of choice, to develop their understanding of the elements involved in choice, and to improve competence in the process of making informed and rational career decisions" (Katz & Kroll, 1975, p. 3). Whereas choices of occupations are considered, the emphasis is not only on the content of decisions but on the process of decision-making. Therefore, the objective of SIGI is not to prescribe the best occupation for the student, but rather to help develop alternatives and plan actions.

A student interacts with SIGI by using a cathode-ray tube display terminal that has a typewriter-like keyboard on which the student records his responses. Copies of selected screen displays may be obtained at certain points along the way by activating a high-speed printer adjacent to the terminal. Scripts are written at the eighth grade level of reading difficulty. Typical student usage involves two to four sessions at the terminal, covering a total of three to five hours (Katz, 1975). The content of SIGI is made up of the introduction plus six subsystems with each raising a major question and helping the student with the answer. These questions and answers form steps in career decision-making. The introduction explains the subsections and the process through which the student will be taken. The level of the student's career decision-making and the type of help needed are clarified for the student.

The Values section examines 10 occupational values and weights the importance of each. The student begins to develop an understanding of what he wants in an occupation and what he is willing to give up. The values are high income, prestige, independence, helping others, security, variety, leadership, interest field, leisure, and early entry. Questions are asked which pit various values against one another and which force the student to make a choice among competing values. After several rounds, SIGI clarifies any inconsistencies and allows the student opportunity to adjust any weighting. Since each value is rated on a scale from 1 to 10, it is possible for some students to have more than 40 points and conversely for other students to have less. The adjustment of value weightings to equal exactly 40 points results in students' "values profile."

Locate, the second subsystem, asks the student to consider any five values at a time and then provides a list of occupations which meet the five values profile. The student has the opportunity to manipulate the values in any rank order.

Compare, the third subsystem, allows the student to ask questions about any three occupations at a time and to get specific information on each. Students have 28 possible questions which cover such activities as conditions of work, income, entry requirements, and future outlook. The

information on these questions is updated every six months.

Prediction, the fourth subsystem, provides probabilities of getting various marks in key courses of preparatory programs for occupations. The programming data used for this section are unique to each college. Predictor variables include student self-estimate of grades in a particular course, high school grades, aptitude or achievement test results and previous college grades. Data, as well as grades which students have earned in particular courses, are stored in the computer. SIGI synthesizes this information to assist the student in determining his chances for a particular grade in a course.

Planning, the fifth subsystem, provides displays of programs for entering each occupation, lists of colleges in the region offering suitable majors, and sources of financial aid. Additionally, this section allows for a thinking through of appropriate "next steps" which are needed to achieve career goals.

Strategy, the last subsection, evaluates occupations in respect to the rewards offered and the risks of entrance. For example, if the occupation with the highest desirability does not also have the highest probability, is the reward worth the extra risk? Thus, the student evaluates his choices and explores alternative strategies for choices.

At the end of the process, the student has an opportunity to see a counselor for further assistance. However, this is not an integral or expected part of the program. Educational Testing Service has developed the Counselor's Handbook for SIGI (Chapman, 1973) which suggests how the counselor can capitalize on the student's interaction with SIGI.

Presently, field trials and evaluation efforts are centered at four community colleges and one four-year state university: Mercer County Community College (Trenton, New Jersey), Pasadena City College (Pasadena, California), Santa Fe Community College (Gainesville, Florida), Eastfield College of the Dallas County Community College District (Mesquite, Texas), and Illinois State University (Normal, Illinois).

Research on the System of Interactive Guidance and Information

Katz and Kroll (1975), the research psychologists for SIGI, have proposed that evaluative research efforts are needed which are process oriented and designed to reveal student thinking and logic. They also view a need to "determine how SIGI and counseling can best mesh" (1975, p. 12). The only research completed on SIGI previous to the present field testing was a pilot field trial conducted at

Mercer County Community College (Chapman, 1973). The main purposes were initial evaluation of SIGI and tryout of evaluative procedures and instruments. A stratified random sample of students was chosen to represent proportionately the sex and curriculum distributions of the Mercer freshman class. Experimental and control groups of 30 students each were then matched on the basis of reading and mathematics test scores.

Students in the experimental group were interviewed one week after completion of SIGI; control-group students were interviewed before they used SIGI. The interview session included an oral interview; response to a written information test; participation in a decision-making game; and, for the experimental group only, a personal evaluation of SIGI. Small sample sizes precluded certain statistical analyses, yet this preliminary evaluation provided the basis for positive findings. Students who had experienced SIGI reacted favorably. When asked to grade SIGI on a five point scale with zero representing maximum dissatisfaction and four maximum satisfaction, students gave SIGI mean grades of between three and four on each of the following characteristics and accomplishments: interest level, clarity of directions, helpfulness in achieving increased awareness of values, understanding relation of values to career decisions, identifying occupations that fit values,

getting information about occupations, understanding predictions expressed as probabilities, getting information about programs of study, planning an appropriate program, and learning how to make career decisions.

Other results of the study included students reporting that they had become more aware of their values and had learned how values are related to career decisions. No differences were found in the usefulness or effect of SIGI by sex or by the amount of occupational knowledge students claimed to possess before interaction with SIGI. Students who scored below the median of the study group on a reading test took longer to complete some SIGI subsections than did the group as a whole. Evidence supported the fact that SIGI was used in the way it was designed to be used.

A recent study by Devine (1975) comes closest to matching the investigation being undertaken in this study. Devine evaluated the impact of SIGI on the career development of community college students at Santa Fe Community College in Gainesville, Florida. Specifically, his study was designed to determine the effects of SIGI on students' career maturity, as measured by the Career Maturity Inventory. Using a randomized-solomon-four-group design with 84 students, no significant effects on career maturity were found.

The Career Maturity Inventory

The standardized instrument which was used in this study was the Career Maturity Inventory (CMI) developed originally as the Vocational Development Inventory (VDI) by John Crites in 1961. The name was changed in 1973 to reflect the recent emphasis on career rather than the limiting connotations of "vocation" and to convey the concept of progressive change which underlies emerging career awareness exploration and decision-making. Crites constructed the instrument to measure two of the four variables within his career maturity model: career choice attitude and career choice competencies. Only the attitude scale was used in this study since the competency scale has had limited use and is still being validated. The attitude scale is written at the sixth grade level and is applicable for use with individuals from elementary school through the senior year in college (Crites, 1973b).

Super (1969) criticized the instrument on the grounds that he feared that it might yield a misleading appearance of practicality, which would basically discredit the concept of career maturity rather than help its "examination for many purposes" (Super, 1969, p. 35). Holland (1969) indicated that "the VDI provided the only simple, practical measure of what Super calls 'vocational maturity' so that

researchers of different persuasions can examine the concept for many purposes" (1969, p. 16).

The CMI Attitude Scale

The Attitude Scale is a self-report instrument consisting of 50 true-false items which are designed to measure attitudes toward career choice on five dimensions: involvement in the choice process, orientation toward work, independence in decision-making, preference for career choice factors, and conceptions of the choice process. Only a total raw score results even though the scale theoretically includes the five dimensions listed above. Total testing time is approximately 20 minutes.

No national norms exist for the CMI Attitude Scale, since "the most appropriate reference group for an individual is the one he resembles demographically and educationally" (Crites, 1973a, p. 13). In using local norms, however, the primary consideration is to determine an individual's rate of career development in comparison to grademates (1973a, p. 13). An assessment can be made about a student's career maturity by simply locating the percentile rank corresponding to an individual's raw score in the reference norm table for his grade. In samples of college freshmen in three states, means of 39.77, 38.86,

and 39.29 were reported with scores ranging from 26 to 47 and with standard deviations of 4.11, 4.21, and 6.01 respectively.

The CMI Attitude Scale has been used perhaps most extensively with elementary and secondary school subjects, but several studies (Aiken & Johnston, 1973; Jackson, 1971; Walsh, Howard, O'Brien, Santa-Maria, & Edmundson, 1973; Walsh & Osipow, 1973) have demonstrated its utility in assessing the career maturity of college students. Large-scale testing of college students has also indicated that "there is sufficient ceiling on the Attitude Scale to administer it to college sophomores and juniors and even selected seniors, primarily those who are still undecided about their careers" (Crites, 1973a, p. 51).

Reliability and Validity of the Career Maturity Inventory Attitude Scale

Reliability of the attitude scale was determined by the internal consistency method and the test-retest method. Internal consistency coefficients of .74 were determined by the Kuder-Richardson formula. These coefficients are comparable to other instruments similar to the attitude scale and are consistent with theoretical expectations since the instrument was designed to measure related

but not identical measures of vocational attitudes (Crites, 1973b, p. 14). A test-retest reliability coefficient of .71 was reported for 1,648 students in grades six through 12, tested and retested over a one-year period. This is considered acceptable on theoretical grounds since a high stability coefficient would be contrary to the theory that vocational behavior matures with time (Crites, 1973b). As defined by this methodology and as developed substantively, the Attitude Scale would appear to have acceptable content reliability (Crites, 1973b).

In order to establish criterion-related validity, the Attitude Scale was correlated with career maturity indices such as occupational aspiration, decisiveness and realism of career choice, and the instrument, Readiness for Vocational Planning (RVP), developed by Gribbons and Lohnes. In summary Crites (1973b) concluded that:

It is recognized that the n's are smaller than desired in some studies and hence their findings should be replicated before any definitive conclusions are drawn; nevertheless, they generally indicate that the attitude scale has demonstrated criterion related validity. (Crites, 1973b, p. 16)

Content validity was demonstrated through the procedure employed in selecting items and through the judgment of 10 experts, whose opinions reached a 74% level of agreement with the scoring key. Criterion-related validity

was established through a correlation study of the CMI and the Readiness for Vocational Planning Scale. A correlation coefficient of .38 ($p < .01$) was reported for these two instruments. Another study cited as evidence of the criterion validity, reported a biserial r of .25 between the CMI and the subjects' decisions about a career (Crites, 1973b).

Results of studies on construct validity are mixed but generally supportive in the areas of response bias, correlations with other variables and experimental manipulations of counseling and didactic experiences (Crites, 1973a). Generally, the accumulated research on the Attitude Scale supports its construct validity. "It appears to be related to variables to which, theoretically, it should be related and unrelated to variables to which it should not be related" (Crites, 1973a, p. 21).

Research Using the Attitude Scale for Assessment

As a means of assessing different types of interventions, the Attitude Scale has been used in over 200 studies with mixed results (Crites, 1973b). These studies, which attempted to change attitude scores from lesser to greater career maturity have been of two kinds: some type of counseling experience, either individual or group, and

some variation in a didactic exposure, such as an occupational information course or career game. Several studies, using the CMI Attitude Scale, have demonstrated that counseled students average higher scores than noncounseled students on the posttest. In the counseling studies, experiments by Asbury (1968), Bovee (1967), and Gilliland (1966) indicated that counseled students averaged higher scores than noncounseled students on the Attitude Scale posttest. The subjects in these investigations were representatives of several parameters, including sex, grade, and subgroup membership (e.g., race and socioeconomic status). Other investigations have yielded contrary evidence (Myers, 1966; Guierriero, 1967; Williams, 1967). The causes of these nonsignificant results may be due to any number of factors (Crites, 1971a); further research is needed to determine their import. Crites (1973) stated that "the best conclusion which can be drawn at present is that counseling evidently can affect Attitude Scale scores favorably but it is not known why" (1973a, p. 20).

Summary of the Literature

Since Super undertook his Career Pattern Study in 1951, much attention has been devoted to the concept of career development. As a consequence of investigating developmental variables which allow for the movement of students from one stage to another, the concept of career maturity

has evolved. John Crites has been one of the principal researchers in the study of career maturity and supportive evidence is mounting that career maturity is a construct. Several instruments have been developed which purport to measure career maturity. The Career Maturity Inventory (CMI) is one such instrument. Research on the CMI has illustrated its utility in assessing not only career maturity but the effects of intervention programs on a client's career development. Studies also have been completed which demonstrate that career maturity can be increased in a relatively short time.

Group career counseling is a relatively new method which counselors have utilized in aiding students with their career development. Research which has been completed on this methodology has generally provided support to its efficacy as an intervention technique in career development. However, most of the studies fail to provide specific information on the steps involved in the group counseling process. More information is needed on group counseling approaches which can be replicated and their effectiveness on specific outcome criteria.

ACADEM is a group career counseling activity which is replicable. There is no information on the relationship ACADEM has to outcome criteria such as career maturity. This study examines the relationship ACADEM has to the development of career maturity in community college students.

The need for seriously considering the role of computers in counseling is of increasing importance as this technology continues to improve and to become more available. Little research has occurred on direct inquiry with monitoring computer systems. SIGI is one such computer system. It has been designed to aid community college students with their career development. Career maturity is an objective which counselors seek to achieve in the career development of students. The relationship which SIGI has to career maturity is still being studied.

Counselors have two new techniques from which they can choose in aiding students in their career development: ACADEM, a replicable group career counseling activity and SIGI, a computer program. If the activities and systems are used correctly, similar results can be expected from one session to the next. The extent to which both relate to career maturity is largely unknown.

CHAPTER III

METHODS AND PROCEDURES

The relationship of SIGI and ACADEM to the career maturity of community college students was determined by an experimental research design. The Career Maturity Inventory Attitude Scale was administered prior to, and at the end of, the treatment. A questionnaire was administered prior to treatment to record the variables of sex, age, and decidedness on an occupation of participating students (Appendix A). These variables were studied to determine what relationship they had to career maturity among students participating in SIGI or ACADEM. A posttreatment questionnaire was administered to both the SIGI and the ACADEM groups to assess students' reactions to their respective activities. The posttreatment questionnaire contained general questions for both groups, but it also included specific questions relating to the unique objectives which each activity attempted to achieve.

Research Questions

1. What is the relationship between students' scores on the CMI Attitude Scale and participation in SIGI or the ACADEM program?

2. What is the relationship between students' sex and their scores on the CMI Attitude Scale after participation in SIGI or the ACADEM program?
3. What is the relationship between students' decision on an occupation and their scores on the CMI Attitude Scale after participation in SIGI or the ACADEM program?
4. What is the relationship between younger and older students' scores on the CMI Attitude Scale after participation in SIGI or the ACADEM program?
5. What are student reactions to the SIGI or the ACADEM experience, as measured by a posttreatment questionnaire?

Population

The sample of this study consisted of 97 full time community college students registered at Santa Fe Community College, Gainesville, Florida. These students were enrolled in a three hour behavioral science elective, "The Individual In A Changing Environment," (BE 100). For students who are pursuing the Associate of Arts Degree, the course can be transferred, as a social science credit, to all Florida state universities. Students enrolled in the vocational-technical program (Associate in Science Degree) can count the course toward their social behavioral science requirements. The course content includes a unit on orientation to the community college and its various academic and vocational programs, a career awareness and development unit which attempts to assist students in achieving higher levels

of career development, and a unit on personal and other awareness which has the objective of achieving higher levels of personal growth. Approximately 80% of the total Santa Fe student body take this course.

Selection of the Subjects

Students for this study were enrolled in nine sections of BE 100 during the Fall Quarter, 1975. There were 34 students in the control group, 32 in the SIGI group, and 31 in the ACADEM group. Three of the nine sections were taught by the investigator. Two other counselor/instructors, who were teaching three sections each, assisted with the investigation. One utilized the SIGI program as her career unit, while the second made his classes available for the control group. The investigator used ACADEM as the career unit for his classes.

The Awareness of Career Decision-Making Procedures

The ACADEM group counseling activity was used as the career unit with three sections of BE 100. Credit was given for student participation. It was necessary to have two individuals involved in leading the group counseling activity since the maximum number of students for which ACADEM can be used is 10. Therefore, the counselor/instructor

of the class, the investigator, and another BE 100 counselor/instructor conducted the ACADEM activity. The students were randomly assigned to the two counselor/instructors.

The counselor/instructor who assisted with ACADEM received training and preparation for this involvement from the investigator. Training consisted of (1) a presentation on the theory and rationale of ACADEM, (2) an explanation of each of the activities and associated goals, (3) a review and discussion of the group process guide from which the counselor reads instructions (Appendix B), (4) a discussion of group counseling steps and techniques and how they are and can be utilized within the ACADEM process, and (5) a complete orientation to the research project. The techniques discussed were pairing, facilitative responses (Wittmer & Myrick, 1974), and tasking and selective responding (Daane, 1972).

Johnson (1973) viewed ACADEM as a group counseling activity not requiring a great amount of training or expertise to utilize. He stated, "leaders need only to have the basic characteristics of any helpers: (a) ability to listen, (b) ability to understand others, and (c) ability to communicate clearly" (1973, p. 4).

The schedule for the ACADEM career unit was as follows:

<u>Week</u>	<u>Class</u>	<u>Content</u>	
1	1	Pretest "Introduction"	Understanding the process of career decision-making.
1	2	"The Me Tree"	Understanding abilities and interests.
		"The Millionaire"	Understanding personal values.
2	3	"Occupational Preference Sort"	Understanding occupational groups.
2	4	"Name an Occupation"	Understanding occupational groupings.
		"Friendly Persuasion I"	Understanding reasons for choosing an occupation.
2	5	"Group A Major"	Understanding educational alternatives.
		"Friendly Persuasion II"	Understanding reasons for choosing a major.
3	6	"Strength Bombardment"	Understanding strengths for implementing decisions.
		Posttest	

System of Interactive Guidance and Information Procedures

Exposure to SIGI took place as the career unit for three sections of BE 100 with credit given for student participation. The counselor/instructor monitored the students'

involvement with SIGI by meeting with them during their last regularly scheduled class of each week. The other classes did not meet during the week in order to allow students time to complete the SIGI assignment. Students were assigned two-hour time periods each week for three weeks and were required to complete the following subsystems during their scheduled interaction with SIGI.

<u>Subsystem</u>	<u>Stage of Career Unit</u>
1. Values	1st week
2. Locate and Compare	2nd week
3. Planning and Strategy	3rd week

The investigator realized that this approach to the use of SIGI was different from the procedure which is normally used. However, this approach was chosen because SIGI was an integral part of a class and the investigator was interested in analyzing the effects of a counselor monitoring process where the Counselor's Handbook for SIGI (Chapman, 1973) was utilized. Furthermore, this approach insured a time frame (three weeks) which was the same as the time devoted to participation with ACADEM.

The counselor/instructor used the Counselor's Handbook for SIGI during the weekly meetings. The handbook provides guidelines which assist the counselor in orienting students to SIGI by providing detailed information

on each subsystem. In addition, suggestions are included for effectively handling some anticipated problem areas. The investigator met with the counselor/instructor and her students at the end of each week to assist in the debriefing and handbook utilization. The counselor/instructor whose class used SIGI as the career unit was the same counselor/instructor who aided the investigator with ACADEM.

The SIGI career unit schedule was as follows:

<u>Week</u>	<u>Class</u>	<u>Content</u>
1	1	a. Explanation of the research project. b. Administration of the pretest. c. Orientation to the SIGI program using the guidelines in the handbook.
2	2	a. Discussion of the introduction and values subsystem. b. Problems encountered. c. Utilization of the guidelines for discussions of this subsystem as mentioned in the handbook.
3	3	a. Discussion of the Locate and Compare subsystems. b. Problems encountered. c. Utilization of the guidelines for discussion of this subsystem as mentioned in the handbook.
4	4	a. Discussion of the Planning and Strategy subsystems. b. Problems encountered. c. Utilization of the guidelines for discussion of this subsystem as mentioned in the handbook.

Control Group Procedures

A third counselor/instructor made available three sections of his classes for a control group. The total number of control group students who completed the pretest and posttest was 34. The counselor/instructor of the control group did not present or plan a career information discussion during or before the experiment. However, if any career related question was raised, he addressed himself to it in a natural manner. The career unit which is, as stated above, an integral part of 8E 100 was presented in these three sections after the students took the posttest.

The Research Design

A nonequivalent control group design (Campbell & Stanley, 1966) was used to test the hypotheses. In order to equate the experimental and control groups, an analysis of covariance was used. The method in which the students were recruited also aided in bringing about equivalence. Campbell and Stanley (1966) indicated that the control group is more effective when there is similarity in the recruitment of the experimental and control groups. As stated above, BE 100 is an elective and all students are provided the same information regarding the course. There is no special placement or grouping around variables such as teacher personality.

The nonequivalent control group design provides protection against threats to internal validity. However the design does not control for the interaction of testing and treatment, a threat to external validity. The threat of another external validity problem, reactive arrangements, is controlled. Campbell and Stanley (1966) have stated that when the treatment is a regular and natural part of the classroom, reactive arrangements are not a threat. In this study the treatment was integrated into the subject matter and was the content for the career unit, one of the expected units of study of the course, as outlined in the school catalog.

The graphic representation of the design is as follows:

<u>Group</u>	<u>Pretest</u>	<u>Treatment</u>	<u>Posttest</u>
T ₁	X ₁	SIGI	X ₂
T ₂	X ₁	ACADEM	X ₂
C	X ₁		X ₂

Analysis of the Data

Raw scores (the number of correct responses) were computed for each student participating in the experiment.

The range of possible scores is 0-50 on the Attitude Scale with a higher score indicating greater career maturity. Items on the career information questionnaire (Appendix A) pertaining to a decision on an occupation were scored "1" for a "yes" and a "2" for a "no" response. The variable of sex was scored as a "1" for male and as a "2" for female. The median age of the entire group was then determined. Those students at the median and above were considered "older" and scored as a "1" and those under the median were considered "younger" and scored as a "2."

An analysis of covariance, with the pretest as the covariate, was used to determine what differences, if any, existed between the groups (SIGI, ACADEM, and control) or the variables (sex, age, and decision on an occupation) being studied. A .05 level of significance was accepted as demonstrating significance. The Scheffé multiple comparison technique was used to determine which, if any, groups or variables differed significantly.

The questionnaire used to assess student reactions to the SIGI or the ACADEM activity was developed by the investigator (Appendices C and D). The questionnaire was designed to stimulate student reactions to statements about the activity. A five-point Likert Scale was used for student responses. The first eight statements on both questionnaires are the same for both groups. The remaining

statements (five for SIGI and seven for ACADEM) related to the objectives which each treatment attempted to achieve. The last statement on the SIGI questionnaire asked students to react to the value of the in-class discussion and monitoring of SIGI. Raw scores and percentages for each category were tallied for each statement.

Assumptions of the Study

It was assumed that attitudes can be changed in a relatively short treatment time. Some may contend that the period of time in this study was too short to bring about any significant attitude change. However, previous studies, cited in Chapter II, have reported significant changes on the Attitude Scale over a period of six weeks.

A second assumption was that the investigator's direct participation in the study as an ACADEM group leader and a counseling monitor to SIGI would have no significant effect upon the outcome. It was assumed that the same results would occur if another qualified counselor was involved in the study. This assumption is based on the fact that the investigator had no vested interest in the success or failure of either SIGI or ACADEM and did not have any unique characteristics which would set him apart from other counselors. Furthermore, some might take the

position that the investigator's involvement could enhance the total study. Since he was involved in both of the treatment groups, this could provide a basis for a more equivalent treatment.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

In this study, the researcher examined the relationship of the SIGI computer-assisted career guidance program and the ACADEM group career counseling program to the career maturity of students who participated in these career development programs. The study was not designed to compare SIGI with ACADEM; rather each of these was compared to a common control group. In this chapter an analysis of the data is presented. The analysis is based on the methodology and statistical procedures described in Chapter III. The computer program, Statistical Package for The Social Sciences (SPSS) one-way procedure, was used to aid in the data analysis.

Results of Questions 1, 2, 3, and 4

1. What is the relationship between students' scores on the CMI Attitude Scale and participation in the SIGI or the ACADEM programs?

The data used to answer this question are reported in Tables 1 and 2. Table 1 shows an analysis of covariance of CMI Attitude scores for the three groups. The covariate, the pretest, did not relate significantly to the posttest scores. An observed significance at the .05 level of confidence was found within the three groups on posttest scores.

Table 2 reveals the results of testing to determine where significance occurred. As can be observed, the posttest means were adjusted for the regression effect of the covariate. Scheffe's multiple comparison technique was used to determine the significance of change in the adjusted means. It was discovered that the SIGI students' posttest scores were significantly different from the control group.

2. What is the relationship between students' sex and their scores on the CMI Attitude Scale after participation in the SIGI or the ACADEM program?

The results of testing to answer this question are reported in Table 3. No significant differences were found between males' and females' mean scores from pretest to posttest. No interaction effects were present.

3. What is the relationship between students' decision on an occupation and their scores on the CMI Attitude Scale after participation in the SIGI or the ACADEM program?

Table 1
Analysis of Covariance of Final Career
Maturity Attitude Scores of SIGI, ACADEM and Control Groups

Source of Variation	Sum of Squares	DF	Mean Square	F
Pretest*	87	2	44	1.42
Within Pretest	2927	94	31	
Total	3014	96		
Treatments	119	2	60	5.45**
Error Within Adjusted Groups	982	93	11	
Total	1101	95		

*Covariate

** Significant at $p < .05$

Table 2

Adjusted Posttest Mean Scores of Career Maturity
of Groups (A), and Aposteriori Comparisons with Scheffes Method (8)

(A) Adjusted Posttest Means by Group			
Group	Pretest Means	Posttest Means	Posttest Means Adjusted For Regression Effect of Covariance
SIGI	34.32	37.78	38.92
ACADEM	36.28	37.74	36.96
Control	35.97	35.53	35.19
(8) Scheffé Aposteriori Comparisons of Differences in Adjusted Means			
	Difference	Critical Difference	Significance of F
SIGI vs Control 38.92-35.19	3.73*	2.50	.001
SIGI vs ACADEM 38.92-36.96	1.96	1.74	.10
ACADEM vs Control 36.96-35.19	1.77	1.34	.25

*Significant at $p < .05$

Table 3
Analysis of Variance of Sex Differences Within Groups

Source	Sum of Squares	DF	Mean Squares	F	Significance of F
Main Effects	215.446	3	71.815	5.546	
Group	207.420	2	103.710	8.081	
Sex	11.836	1	11.836	0.922	0.999
2-Way Interactions	9.119	2	4.560	0.355	0.999
Group Sex					
Explained	355.333	6	59.222	4.615	
Residual	1155.028	90	12.834		
Total	1510.362	96	15.733		

Table 4 contains the data which answered this question. A significant difference was not found between students who were decided on an occupation and those who were undecided. No interaction effects were present.

4. What is the relationship between younger and older students' scores on the CMI Attitude Scale after participation in the SIGI or the ACADEM program?

The results of testing to answer this question are reported in Table 5. No significant difference was found between the scores of students under 19 and those 19 and over from pretest to posttest. There were no interaction effects.

Discussion of Results to Questions 1, 2, 3, and 4

There are a number of factors which could have led to the significance of change in the SIGI group scores. The fact that SIGI is a novel approach to which most students have never been exposed could have created the excitement and motivation needed to facilitate student concentration and attention. Also, SIGI is an individualized approach which is designed to provide a student with information relevant to his particular needs. Therefore, a student receives personal attention and information for the length of the SIGI program, which is approximately five

Table 4

Analysis of Variance of Decidedness
Differences Within Groups

Source	Sum of Squares	DF	Mean Squares	F	Significance of F
Main Effects					
Group	219.506	3	73.169	5.686	
Decide	170.964	2	85.482	6.643	
	15.896	1	15.896	1.235	0.269
2-Way Interactions					
Group Decide	1.930	2	0.965	0.075	0.999
Explained	352.204	6	58.701	4.562	
Residual	1158.158	90	12.868		
Total	1510.362	96	15.733		

Table 5
Analysis of Variance of Age Differences Within Groups

Source	Sum of Squares	DF	Mean Squares	F	Significance of F
Main Effects					
Group	203.625	3	67.875	5.196	
Age	195.740	2	97.870	7.492	
	0.015	1	0.015	0.001	0.999
2-Way Interactions					
Group Age	0.254	2	0.117	0.010	0.999
Explained	334.647	6	55.775	4.269	
Total	1510.362	96	15.733		

hours. This differs from the ACADEM activity which is a group approach and does not provide the depth of individual attention.

In a related study reported in Chapter II, Devine (1975) found that the SIGI program did not have a significant effect upon students' career maturity attitude scores. In comparing the research design of this study with that of Devine's, three major differences are apparent. First, Devine's sample consisted of community college students who volunteered to participate in the study, whereas this study's sample consisted of students who were required to complete the SIGI program as a part of a career development unit within a behavioral science class. Secondly, in Devine's study, students did not receive the help of a counselor as they proceeded through the SIGI program. In this study, students met with their behavioral science class counselor/instructor once each week during the three weeks of the SIGI assignment. During those meetings, the counselor/instructor used the instructions and suggestions in the Counselor's Handbook for SIGI (Chapman, 1973) as a guide for discussion. Those discussions undoubtedly aided students in having a better understanding of the SIGI subsections. Consequently, they were able to use their time spent at the terminal more effectively. Thirdly, Devine's study allowed students the flexibility of completing SIGI anytime within a five-week span. As a consequence, some

students completed the program within the first few days while others delayed their completion until the fifth week. Thus, when the posttest was administered at the end of the fifth week, there were varying levels of freshness of information and maturation. In contrast, this study required students to proceed through SIGI at the same pace. They were assigned to specific subsections each week during the three weeks and were asked not to proceed into additional subsections. As mentioned previously, the ACADEM activity did not provide for the depth of individual attention and information as did the SIGI activity. It is possible that this is a reason why the ACADEM students' scores were not significant and the scores of SIGI students were. A second possibility is the fact that the ACADEM program was not completed in one or two sessions but was extended over six sessions lasting three weeks. Although Johnson, the author of ACADEM, does not recommend a specific time frame or a certain sequencing of activities, the ACADEM program does rely on a positive group climate for purposes of interaction and feedback. Perhaps the fact that there were six stopping and starting points before the activity was completed may have hindered the development of the group climate needed to maximize learning.

Results of Question 5

5. What are student reactions to the SIGI or the ACADEM experience, as measured by a post-treatment questionnaire?

As reported in Chapter III, students in both treatment groups responded to the questionnaire items 1 through 8. The remaining statements on both the SIGI and ACADEM questionnaires (with the exception of statement 14 on the SIGI questionnaire) related to the objectives which each activity attempted to achieve. Therefore, since each activity had a different set of objectives, the remaining statements were different for each group (Appendices C and D).

The responses of the students who participated in SIGI are revealed in Tables 8 and 9, while the responses of those students who participated in ACADEM are revealed in Tables 10 and 11. Table 12 compares the feelings of both the SIGI and the ACADEM students regarding the achievement of the objectives of their respective activities. Table 13 reports the extent to which the SIGI students perceived, as being helpful, the in-class discussions on SIGI.

Tables 6 and 7 provide a comparison of SIGI and ACADEM student responses to the first eight statements. To statement 1, "the activity provided me with helpful information on occupations," 13.9% of the ACADEM students and 30.5% of the SIGI students responded "strongly agree," 65.1% of the ACADEM students and 63.8% of the SIGI students responded "agree," 16.2% of the ACADEM students and 2.7%

of the SIGI students responded "not certain," 4.6% of the ACADEM students and none of the SIGI students responded "disagree," and none of the ACADEM students and 2.7% of the SIGI students responded "strongly disagree" (Table 6). In summary, Table 7 reveals that 79% of the ACADEM students and 94.4% of the SIGI students responded positively while 4.6% of the ACADEM students and 2.7% of the SIGI students responded negatively.

To statement 2, "the activity aided me in choosing an occupation," 9.3% of the ACADEM students and 11.1% of the SIGI students responded "strongly agree," 23.2% of the ACADEM students and 36.1% of the SIGI students responded "agree," 41.8% of the ACADEM students and 30.5% of the SIGI students were "not certain," 25.5% of the ACADEM students and 16.6% of the SIGI students disagreed, and none of the ACADEM students and 5.5% of the SIGI students responded "strongly disagree" (Table 6). In summary, Table 7 reveals that 32.5% of the ACADEM students and 47.2% of the SIGI students felt positive while 25.5% of the ACADEM students and 22.2% of the SIGI students felt negative toward statement 2.

To statement 3, "the activity aided me to clarify my values," 20.9% of the ACADEM students and 16.6% of the SIGI students strongly agreed, 60.4% of the ACADEM students and 55.5% of the SIGI students agreed, 18.6% of the ACADEM

Table 6

Student Reactions to SIGI (S) or to ACADEM (A).
First Eight Statements—Five Categories

Statement	Activity	Strongly Disagree		Disagree		Not Certain		Agree		Strongly Agree		Total
		N	%	N	%	N	%	N	%	N	%	N
1. Provided me with helpful information on occupations.	(A) (S)	0 1	0 2.7	2 0	4.6 0	7 1	16.2 2.7	28 23	65.1 63.8	6 11	13.9 30.5	43 36
2. Aided me in choosing an occupation.	(A) (S)	0 2	0 5.5	11 6	25.5 16.6	18 11	41.8 30.5	10 13	23.2 36.1	4 4	9.3 11.1	43 36
3. Helped me to clarify my values.	(A) (S)	0 1	0 2.7	0 1	0 2.7	8 8	18.6 22.2	26 20	60.4 55.5	9 6	20.9 16.6	43 36
4. Aided me in my academic planning.	(A) (S)	1 1	2.3 2.7	5 5	11.6 13.8	24 5	55.8 13.8	12 23	27.9 63.8	1 2	2.3 5.5	43 36
5. Helped me to develop decision-making skills.	(A) (S)	0 2	0 5.5	7 6	16.2 16.6	12 10	27.9 27.7	21 14	48.8 38.8	3 4	6.9 11.1	43 36
6. The instructions I received were clear.	(A) (S)	0 1	0 2.7	2 2	4.6 5.5	6 1	13.9 2.7	25 19	58.7 50.7	10 13	23.2 36.1	43 36
7. I enjoyed the activity.	(A) (S)	1 1	2.3 2.0	1 3	2.3 8.3	1 1	2.3 2.7	20 19	46.5 52.7	20 12	46.5 33.5	43 36
8. Other students would benefit from the activity.	(A) (S)	0 1	0 2.7	2 0	4.6 0	5 3	11.6 8.3	16 19	37.2 52.7	20 13	16.5 36.1	43 36
Total	(A) (S)	2 10	.05 3.4	30 23	8.7 8.6	81 40	23.4 13.8	158 150	46.0 51.5	73 65	21.2 22.5	344 288

Table 7

Student Reactions to SIGI (S) or to ACADEM (A).
First Eight Statements—Three Categories

Statement	Activity	Negative		Not Certain		Positive		Total
		N	%	N	%	N	%	N
1. Provided me with helpful information on occupations.	(A) (S)	2 1	4.6 2.7	7 1	16.2 2.7	34 34	79.0 94.4	43 36
2. Aided me in choosing an occupation.	(A) (S)	11 8	25.5 22.2	18 11	41.8 30.5	14 17	32.5 47.2	43 36
3. Helped me to clarify my values.	(A) (S)	0 2	0 5.5	8 8	18.6 22.2	35 26	81.3 72.2	43 36
4. Aided me in my academic planning.	(A) (S)	6 6	13.9 10.6	24 5	55.8 13.8	13 25	30.2 69.4	43 36
5. Helped me to develop decision-making skills.	(A) (S)	7 8	16.2 22.2	12 10	27.9 27.7	24 18	58.1 50.0	43 36
6. The instructions I received were clear.	(A) (S)	2 3	4.6 8.3	6 1	13.9 2.7	35 32	81.3 88.8	43 36
7. I enjoyed the activity.	(A) (S)	2 4	4.6 8.3	1 1	2.3 2.7	40 31	93.0 88.5	43 36
8. Other students would benefit from the activity.	(A) (S)	2 1	4.6 2.7	5 3	11.6 8.3	36 32	83.7 88.8	43 36
Total	(A) (S)	32 33	9.2 11.4	81 40	23.4 13.8	231 215	66.9 74.6	344 288

students and 22.2% of the SIGI students were not certain, none of the ACADEM students and 2.7% of the SIGI students disagreed, and none of the ACADEM students and 2.7% of the SIGI students strongly disagreed (Table 6). Table 7 reveals that a total of 81.3% of the ACADEM students and 72.2% of the SIGI students felt positive, while none of the ACADEM students and 5.5% of the SIGI students felt negative toward statement 3.

To statement 4, "the activity aided me in my academic planning," 2.3% of the ACADEM students and 5.5% of the SIGI students responded "strongly agree," 27.9% of the ACADEM students and 63.8% of the SIGI students responded "agree," 55.8% of the ACADEM students and 13.8% of the SIGI students responded "not certain," 11.6% of the ACADEM students and 13.8% of the SIGI students responded "disagree," and 2.3% of the ACADEM students and 2.7% of the SIGI students responded "strongly disagree" (Table 6). Table 7 reveals that a total of 30.2% of the ACADEM students and 69.4% of the SIGI students felt positive toward statement 4, while 13.9% of the ACADEM students and 10.6% of the SIGI students felt negative.

To statement 5, "the activity helped me to develop decision-making skills," 6.9% of the ACADEM students and 11.1% of the SIGI students responded "strongly agree," 48.8% of the ACADEM students and 38.8% of the SIGI students

responded "agree," 27.9% of the ACADEM students and 27.7% of the SIGI students responded "not certain," 16.2% of the ACADEM students and 16.6% of the SIGI students responded "disagree," and none of the ACADEM students and 5.5% of the SIGI students responded "strongly disagree" (Table 6). In summary, Table 7 reveals that 58.1% of the ACADEM students and 50% of the SIGI students felt positive toward statement 5, while 16.2% of the ACADEM students and 22.2% of the SIGI students felt negative.

To statement 6, "the instructions I received during the activity were clear," 23.2% of the ACADEM students and 36.1% of the SIGI students strongly agreed, 58.7% of the ACADEM students and 50.7% of the SIGI students agreed, 13.9% of the ACADEM students and 2.7% of the SIGI students were not certain, 4.6% of the ACADEM students and 5.5% of the SIGI students disagreed, and none of the ACADEM students and 2.7% of the SIGI students strongly disagreed (Table 6). Table 7 reveals that a total of 81.3% of the ACADEM students and 88.8% of the SIGI students felt positive toward statement 6, while 4.6% of the ACADEM students and 8.3% of the SIGI students felt negative.

To statement 7, "I enjoyed the activity," 46.5% of the ACADEM students and 33.5% of the SIGI students responded "strongly agree," 46.5% of the ACADEM students and 52.7% of the SIGI students responded "agree," 2.3% of the ACADEM students and 2.7% of the SIGI students

responded "not certain," 2.3% of the ACADEM students and 8.3% of the SIGI students responded "disagree," and 2.3% of the ACADEM students and 2.7% of the SIGI students responded "strongly disagree" (Table 6). In summary, Table 7 reveals that 93% of the ACADEM students and 88.5% of the SIGI students felt positive toward statement 7 while 4.6% of the ACADEM students and 8.3% of the SIGI students felt negative.

To statement 8, "other students would benefit from the activity," 16.5% of the ACADEM students and 36.1% of the SIGI students strongly agreed, 37.2% of the ACADEM students and 52.7% of the SIGI students agreed, 11.6% of the ACADEM students and 8.3% of the SIGI students were not certain, 4.6% of the ACADEM students and none of the SIGI students disagreed, and none of the ACADEM students and 2.7% of the SIGI students strongly disagreed (Table 6). Table 7 reveals that 83.7% of the ACADEM students and 88.8% of the SIGI students felt positive toward statement 8, while 4.6% of the ACADEM students and 2.7% of the SIGI students felt negative.

The average raw scores to the first eight statements are reported in Tables 6 and 7. The average "strongly agree" response was 21.2% by the ACADEM students and 22.5% by the SIGI students. The average "agree" response was 46% by the ACADEM students and 51.5% by the SIGI students.

The average "not certain" response was 23.4% by the ACADEM students and 13.8% by the SIGI students. The average "disagree" response was 8.7% by the ACADEM students and 8.6% by the SIGI students. The average "strongly disagree" response was .05% by the ACADEM students and 3.4% by the SIGI students (Table 6). Table 7 reveals that the average positive response by the ACADEM group was 65.9% while the average positive response by the SIGI group was 74.6%. The average negative response by the ACADEM group was 9.2% while the SIGI group had an average negative response of 11.4%.

Tables 8 and 9 report the results of student responses to the statements on the SIGI questionnaire which relate to SIGI's objectives. To statement 9, "I have a clearer idea of the satisfactions I want from an occupation," 19.4% of the students responded "strongly agree," 63.8% responded "agree," 5.5% responded "not certain," 8.3% responded "disagree," and 2.7% responded "strongly disagree" (Table 8). Table 9 reveals that a total of 83.3% of the SIGI students felt positive about this statement and 11.1% reacted negatively.

To statement 10, "I was aided in determining which occupations I want to explore in more depth," 9.3% of SIGI students strongly agreed, 72.2% were in agreement, 8.3% were not certain, 8.3% disagreed and 2.7% strongly disagreed

Table 8
Student Reactions to the Objectives of SIGI—Five Categories

Statement	Strongly Disagree N	Disagree N	Not Certain N	Agree N	Strongly Agree N	Total N
9. Clearer idea of the satisfactions wanted from an occupation.	1	3	2	23	7	36
10. Aided in determining which occupation to explore in depth.	1	3	3	26	3	36
11. Better idea of the advantages and disadvantages of different occupations.	1	0	1	25	9	36
12. More knowledge of the necessary steps for entering the occupation of interest.	1	2	3	18	11	35
13. A better understanding of how to combine all the information for the purpose of making a career choice.	1	2	5	24	2	34
Total	5	10	14	116	32	177

Table 9

Student Reactions to the Objectives of SIGI—Three Categories

Statement	Negative		Not Certain		Positive		Total
	N	%	N	%	N	%	N
9. Clear idea of the satisfactions wanted from an occupation.	4	11.1	2	5.5	30	83.3	36
10. Aided in determining which occupation to explore in depth.	4	11.1	3	8.3	29	80.5	36
11. Better idea of the advantages and disadvantages of different occupations.	1	2.7	1	2.7	34	94.4	36
12. More knowledge of the necessary steps for entering the occupation of interest.	3	8.5	3	8.5	29	82.9	35
13. A better understanding of how to combine all the information for the purpose of making a career choice.	3	8.5	5	14.7	26	76.4	34
Total	15	8.4	14	7.9	148	83.6	177

(Table 8). In summary, Table 9 reveals that 80.5% of the students felt positive and 11.1% felt negative toward statement 10.

To statement 11, "I have a better idea of the advantages and disadvantages of different occupations," 25% of the SIGI students strongly agreed, 69.4% agreed, 2.7% were not certain, none disagreed, and 2.7% strongly disagreed. Table 9 reveals that a total 94.4% of the students felt positive and 2.7% felt negative toward statement 11.

To statement 12, "I have more knowledge of the necessary steps for entering an occupation in which I am interested," 31.4% of the SIGI students strongly agreed, 52.9% agreed, 8.8% were not certain, 5.8% disagreed, and 2.9% strongly disagreed. Table 9 reveals that a total of 82.9% of the SIGI students felt positive while 8.5% felt negative toward statement 12.

To statement 13, "I have a better understanding of how to combine all the information I have on occupations and myself for the purpose of making a reasonable career choice," it can be observed from Table 8 that 5.8% of SIGI students strongly agreed, 70.5% were in agreement, 14.7% were not certain, 5.8% disagreed, and 2.9% strongly disagreed. In summary, Table 9 reveals that 76.4% of the SIGI students felt positive and 8.8% felt negative toward statement 13.

The average raw score responses by SIGI students to the statements which relate to the SIGI objectives are revealed in Table 8. As can be observed, there was an average "strongly agree" response of 18%, an average "agree" response of 65.5%, an average "not certain" response of 7.9%, an average "disagree" response of 5.6%, and an average "strongly disagree" response of 2.8%. Table 9 reveals that the average positive response by the SIGI students was 83.6% while the average negative response was 8.4% to the statements which relate to the SIGI objectives.

Tables 10 and 11 report the results of student responses to the statements which relate to ACADEM's objectives. To statement 9, "I have a better understanding of my abilities and interests," 4.7% of the ACADEM students strongly agreed, 54.7% agreed, 26.1% were not certain, 11.9% disagreed, and 2.3% strongly disagreed (Table 10). Table 11 reveals that a total of 59.5% of the ACADEM students felt positive and 14.2% felt negative toward this statement.

To statement 10, "I now have a better understanding of personal criteria for selecting an occupation" (Table 10), 11.9% of the ACADEM students strongly agreed, 59.5% agreed, 19% were not certain, 9.5% disagreed, and none strongly disagreed. In summary, Table 11 reveals that 71.4% of the ACADEM students felt positive and 9.5% negative toward statement 10.

Table 10

Student Reactions to the Objectives of ACADEM—Five Categories

Student Reactions to the Objectives of the Course

Statement	Strongly Disagree N %	Disagree N %	Not Certain N %	Agree N %	Strongly Agree N %	Total N					
9. I have a better understanding of my abilities and interests.	1	2.3	5	11.9	11	26.1	23	54.7	2	4.7	42
10. I have a better understanding of personal criteria for selecting an occupation.	0	0	4	9.5	8	19.0	25	59.5	5	11.9	42
11. I have a better understanding of different occupational areas.	0	0	4	9.5	8	19.0	24	57.1	6	14.2	42
12. I have a better understanding of my personal reasons for choosing an occupation.	0	0	3	7.1	6	14.2	22	52.5	11	26.1	42
13. I have a better understanding of educational majors.	0	0	2	4.7	6	14.2	28	66.6	6	14.2	42
14. I have a better understanding of my personal reasons for choosing a major field of study.	0	0	2	4.7	5	11.9	26	61.9	9	21.4	42
15. I have a better understanding of my strengths.	0	0	0	0	6	14.2	20	47.6	16	38.0	42
Total	-	.003	20	6.8	50	17.0	169	57.4	55	18.7	294

Table 11
Student Reactions to the Objectives of ACADEM—Three Categories

Statement	Negative N	Negative %	Not Certain N	Not Certain %	Positive N	Positive %	Total N
9. I have a better understanding of my abilities and interests.	6	14.2	11	26.1	25	59.5	42
10. I have a better understanding of personal criteria for selecting an occupation.	4	9.5	8	19.0	30	71.4	42
11. I have a better understanding of different occupational areas.	4	9.5	8	19.0	30	71.4	42
12. I have a better understanding of my personal reasons for choosing an occupation.	3	7.1	6	14.2	33	78.5	42
13. I have a better understanding of educational majors.	2	4.7	6	14.2	34	80.9	42
14. I have a better understanding of my personal reasons for choosing a major field of study.	2	4.7	5	11.9	35	83.3	42
15. I have a better understanding of my strengths.	0	0	6	14.2	36	85.7	42
Total	21	7.1	50	17.0	223	75.8	42

To statement 11, "I have a better understanding of different occupational areas," 14.2% of the ACADEM students strongly agreed, 57.1% agreed, 19% were not certain, 9.5% disagreed, and none strongly disagreed. Table 11 reveals that a total of 71.4% of the ACADEM students felt positive and 9.5% negative toward statement 11.

To statement 12, "I have a better understanding of my personal reasons for choosing an occupation," 25.1% of the ACADEM students strongly agreed, 52.5% agreed, 14.2% were not certain, 7.1% disagreed, and none strongly disagreed with this statement (Table 10). Table 11 reveals that 78.3% of the ACADEM students felt positive and 7.1% negative toward statement 12.

To statement 13, "I have a better understanding of different educational majors," 14.2% of the ACADEM students strongly agreed, 66.6% agreed, 14.2% were not certain, 4.7% disagreed, and none of the students strongly disagreed. Table 11 reveals that a total of 80.9% of the ACADEM students felt positive and 4.7% negative toward statement 13.

To statement 14, "I have a better understanding of personal reasons for choosing a major field of study," (Table 10) 21.4% of the ACADEM students strongly agreed, 61.9% agreed, 11.9% were not certain, 4.7% disagreed, and none strongly disagreed. Table 11 reveals that 83.3%

of the ACADEM students felt positive and 4.7% negative toward statement 14.

To statement 15, "I have a better understanding of my strengths," 38% of the ACADEM students strongly agreed, 47.6% agreed, 14.2% were not certain, and none disagreed or strongly disagreed with this statement (Table 10). In summary, Table 11 reveals that 85.7% of the ACADEM students felt positive and none negative toward statement 15.

Table 10 provides an understanding of the average raw score response to the statements relating to the ACADEM objectives. An average of 18.7% strongly agreed, 57.4% agreed, 17% were not certain, 6.8% disagreed, and .003% strongly disagreed to the overall effectiveness of the ACADEM activity in relation to its objectives. In summary, 75.8% felt positive and 7.1% expressed negative feelings toward the statements relating to ACADEM's objectives.

Table 12 provides a comparison of the average reaction to the statements relating to both SIGI's and ACADEM's objectives. The five category comparison reveals that there was an average "strongly agree" response by 18% of the SIGI students and 18.7% of the ACADEM students. The average "agree" response for the SIGI students was 65.5% while the average for the ACADEM students was 57.4%. The SIGI students had an average "not certain" response of

Table 12
Student Reaction to the Objectives of SIGI and ACADEM—Compared

		Five Categories				
Percentage by Five Categories		Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree
	SIGI	2.8	5.6	7.9	65.5	18.0
	ACADEM	0.3	6.8	17.0	57.4	18.7

		Three Categories		
Percentage by Three Categories		Negative	Not Certain	Positive
	SIGI	8.4	7.9	83.6
	ACADEM	7.1	17.0	75.8

7.9% while the ACADEM students' average was 17%. The average disagree response of the SIGI students was 5.6% while the average for the ACADEM students was 6.8%. The average "strongly disagree" response was 2.8% by the SIGI students and 0.3% by the ACADEM students. When the total raw scores for each activity were averaged, 83.6% of the SIGI students and 75.8% of the ACADEM students were positive, while an average of 8.4% of the SIGI students and 7.1% of the ACADEM students were negative.

Table 13 reveals the SIGI students' reactions to statement 14, "the BE 100 discussion which paralleled my interactions with SIGI were helpful." It can be observed that 20.5% of the SIGI students strongly agreed, 58.8% agreed, 14.7% were not certain, 2.9% disagreed, and 2.9% strongly disagreed. In summary, 79.4% of the SIGI students felt positive and 5.8% negative toward the helpfulness of the BE 100 discussions of SIGI.

Discussion of the Results to Question 5

Overall, both SIGI and ACADEM students were positive about the activity in which they participated. It can be observed from Tables 7 and 12 that the average positive response exceeded the average negative response for both groups. To the first eight statements, the ACADEM students

Table 13
Student Reaction to Assistance of In-Class Discussion of SIGI—Statement 14

Statement	Five Categories									
	Strongly Disagree		Disagree		Not Certain		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
14. The BE 100 discussions were helpful.	1	2.9	1	2.9	5	14.7	20	58.8	7	20.5

Statement	Three Categories					
	$\frac{\text{Negative}}{N}$	$\frac{\text{Not Certain}}{N}$	$\frac{\text{Positive}}{N}$	$\frac{\text{Positive}}{\%}$		
14. The BE 100 discussions were helpful.	2	5.8	5	14.7	27	79.4

had an average positive response of 66.9% versus a 9.2% average negative response, while the SIGI students' average positive response was 74.6% versus an 11.4% average negative response (Table 7). To the objectives, ACADEM students had an average positive response of 75.8% versus an average negative response of 7.1%, while the average positive response of the SIGI group was 83.6% versus an 8.4% average negative response (Table 12).

It is interesting to observe that although the average positive response by the SIGI students exceeded the average positive response of the ACADEM students, the SIGI students had a slightly higher percentage of average negative responses than the ACADEM students.

In this investigator's opinion, SIGI was perceived in a slightly more positive manner because the program provided more personal attention and information to the student. The added convenience of the high-speed printer of the SIGI program allows the student to receive print-outs of information throughout the interaction with SIGI. ACADEM provides information of a general nature while attempting to develop a group climate for the purpose of feedback and discussion. It is possible that when attempting to make career decisions, a student reacts more positively to the individualized method of receiving a large amount of personally relevant information rather than to a group situation involving discussion and reflection on a limited amount of general information.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

Introduction

With the recent interest in career education, new techniques have been developed to aid counselors in facilitating students' career development. Research is needed to provide counselors with information which they can use in choosing the activity (or activities) which has the most potential for aiding their students. The purpose of this study was to determine what relationship SIGI, a computer-assisted career decision-making program, and ACADEM, a group career counseling program, had to the development of career maturity in community college students. A secondary, and related, purpose was to determine how two different groups of students viewed their participation in SIGI or ACADEM and the extent to which each program achieved its stated objectives.

This investigator found little research in the literature on computer-assisted programs which attempt to develop career maturity in students. Results of research on group career counseling have been inconsistent. Prior to this

study, no research has been conducted on the ACADEM group career counseling program.

Conclusions

As a result of this study, the investigator has drawn the following conclusions:

1. There does appear to be a significant relationship between the SIGI computer program and career maturity as measured by the CMI Attitude Scale. This relationship seems to be enhanced when a counselor parallels student interaction with SIGI with a discussion group, using the Counselor's Handbook for SIGI as a guide. Consistent with this is the implication that it is advantageous to schedule completion of the SIGI program over a period of several sessions as opposed to one very long (five or six hours) session of interaction with the computer. Scheduling the portions to be completed with SIGI over a time frame would thus permit relevant orientation and discussion opportunities during class time to enhance the SIGI experience.
2. The group career counseling activity, ACADEM, does not appear to have a significant relationship to career maturity attitude scores, as measured by the CMI Attitude Scale.

3. The variables of sex, decision on an occupation, and age (younger and older students) do not have a significant relationship to career maturity attitude scores, as measured by the CMI Attitude Scale.
4. The SIGI computer program, with participants meeting with a counselor periodically for purposes of orientation and discussion, appears to have advantages over the ACADEM group career counseling activity when the objective is to increase career maturity.
5. It can be expected that students who participate in either SIGI or ACADEM will react positively to the experience.

Implications

This study provides counselors with information about the effectiveness of two career development techniques. Such data should aid in making a choice when both techniques are available. Additionally, a design for integrating a computer program and a small group career counseling activity into the classroom is available to the counselor and/or career development teacher.

Additional evidence now exists to help allay the counselor's fear that the computer might replace him. As

previously discussed, Devine's (1975) study of SIGI furnished no evidence of a significant increase in career maturity attitudes. However, his study did not include a counselor meeting with students periodically for purposes of orientation and discussion. This study, with the counselor variable added, resulted in a significant increase in career maturity attitudes. Support is therefore provided for the counselor to be the manager of the computer and to utilize it as an additional tool in student career development.

Counselors who use either SIGI or ACADEM as a career development unit in a class can expect students to feel positive toward their experience. Since motivation and interest are prime considerations for any activity to be undertaken with students, this knowledge should be of value to counselors.

In response to public demand for increased accountability coupled with the reality of tighter budgets, student personnel administrators are faced with an increasing need to justify expenditures. This study provides evidence of the potential value of the SIGI computer program. This evidence should be of assistance in developing a rationale for spending money on such a program and for time allotted to train counselors in the effective utilization of the SIGI program. The fact that career maturity

attitudes were changed significantly in the relatively short period of three weeks is additional evidence of the potential of the SIGI program. The investigator did not find, in the literature, any report of research in which career maturity attitudes were changed in a time period less than six weeks.

Limitations

There are two limitations to this study which should be taken into consideration in interpreting the data. Only career maturity attitudes were studied. As mentioned in Chapter II, the career maturity construct is still in a developmental stage, with career maturity attitudes only one of the proposed dimensions. Therefore, it would be an error to assume that career maturity in the total sense has been influenced by SIGI. Secondly, in this study the researcher took an active role in both experimental groups. It is not known how much his knowledge of the CMI Attitude Scale items or the objectives of the study may have influenced the final scores.

Suggestions for Further Research

Results of this study suggest that several areas of research are warranted. In order to determine the relationship

the investigator had to the outcome of the study, the research design should be replicated without the investigator's participation. Also, additional instruments are needed which measure all dimensions of the career maturity construct.

A study should be undertaken to determine what changes in career maturity attitudes take place among students whose interest in participating in SIGI or ACADEM is of their own volition. This study made participation in SIGI or ACADEM a class requirement. It is possible that students who participate in these activities voluntarily might achieve different results. Both SIGI and ACADEM should be researched to investigate career development outcomes other than career maturity. The relationship or effect which SIGI and ACADEM have on realism of choice, work values, need to specify, and career-information seeking behaviors are a few areas to which research could be directed.

A study which evaluates the effects of the ACADEM experience when the group process is completed in one or two meetings could be undertaken. As has been mentioned, in this study ACADEM was completed over a three week period involving six different meetings.

Finally, other outcomes of SIGI could be studied, such as the effects of the program on a student's values clarification and decision-making skills.

APPENDICES

APPENDIX A
PRETEST CAREER INFORMATION QUESTIONNAIRE

Name _____ BE Section Number _____

Sex: _____ Male _____ Female

Age: _____ (to nearest birthday)

Have you made a decision on an occupational field? _____ Yes
_____ No

If so, what is your occupational choice? _____

(Please leave this space blank)

Exp. Grp. _____

Sex _____

Age _____

Decision _____

Atti., pre _____

Atti., post _____

APPENDIX B
FACILITATOR'S GUIDE FOR ACADEM

ACADEM
Personal Assessment
Activity 1

Introduction to Career Decision-Making

- Goals: For each person to have a better understanding of:
1. the process of career decision-making
 2. the overall purpose of career decision-making program.

Materials: The "Career Decision-Making Model Chart," paper and pencils.

Procedures:

A. "The Name Games"

1. Ask the group to seat themselves in a circle.
2. Say to the person on your left: "I want you to give your first name. The next person on your left will repeat your name and then give his/her first name. We will continue this process around the circle with each successive person repeating all the preceding names before giving his/her own."
3. Encourage the group members to move slowly and to associate each name with the face.

B. "The Program"

1. Place the "Career Decision-Making Model Chart" where everyone in the group can see it.
2. Say: "Career decision-making is an ongoing, developmental process which involves educational, occupational, and personal-social decisions. While the process is not smooth and sequential for everyone, stages can be identified which enables us to better understand what is involved in making career decisions. This chart (point to chart) identifies these stages and explains the critical tasks associated with each stage."
3. Read through the model briefly with the group and answer questions.
4. Say: "The purpose of this program is to teach the process of career decision-making by participating in activities related to the critical tasks of each stage."

C. "Complete the Sentence"

1. Distribute a piece of paper and a pencil to each person.

2. Say: "In a moment I will start a sentence. When I stop, I want each of you to write an ending to the sentence. Write the first thing that comes to mind."
3. Pause a moment until everyone is ready. Then say, "To me, choosing a career means . . ."
4. Allow about one minute for each person to complete the sentence.
5. Then ask each person to read what they have written. Do not discuss any of the responses.

Discussion:

1. How was the way you completed the sentence different from others?
2. How was the way you completed the sentence similar to others?
3. What do you feel you need to know in order to make better career decisions?
4. How is career decision-making more complex than simply finding a job?

ACADEM
Personal Assessment
Activity 2

The Me Tree

Goal: For each person to have a better understanding of abilities and interest.

Materials: Copies of the "Me Tree," paper and pencils.

Procedures:

1. Distribute copies of the "Me Tree," paper and pencils to each person.
2. Ask each student to fill in the blanks of their "Me Tree" (allow five minutes).
3. Say: "Take a minute to review your 'Me Tree.' Then, on the piece of paper, write three personal adjectives that best describe your interests and abilities." Allow about two minutes.
4. Collect the papers. Then say: "I will now read each of the sets of adjectives. After I have read each set, you are to guess who wrote it and tell what made you associate it with that person. If you are the person who wrote the adjectives, do not identify yourself until all the sets have been read."

5. After the guessing is completed, go back and find out who wrote each set. Allow some time for people who might wish to explain why they guessed incorrectly or why they chose the particular adjective.

Discussion:

1. How did you feel when someone guessed you incorrectly?
2. How did you feel when someone guessed you correctly?
3. How do abilities and interests affect your occupational choices?
4. How might the way others see you affect your occupational choice?

ACADEM
Personal Assessment
Activity 3

The Millionaire

Goal:

For each person to have a better understanding of the personal values that can affect career decision-making.

Materials:

Paper and pencils.

Procedures:

1. Distribute a piece of paper and a pencil to each person.
2. Say: "I want each of you to pretend that you are a millionaire and can choose any career or life style with no concern for money. Now, assuming you're a millionaire, write three things you would do with your life."
3. After the lists have been made say: "Now rank your list in order of importance, with number one being most important and number three being least important."
4. Ask each student to read his list in rank order from most to least important to the rest of the group. After each disclosure allow one or two minutes for responses from other members of the group.

Discussion:

1. After discussing your list, what changes would you make? Why?
2. What seem to be your primary values?
3. Based on your primary values, what types of occupations might you pursue?

ACADEM
Personal Assessment
Activity 4

Occupational Preference Sort

Goal: For each person to have a better understanding of the personal criteria to be used in selecting an occupation.

Materials: Copies of the "Occupational Preference Sort" and pencils.

Procedures:

1. Give each person a copy of the "Occupational Preference Sort" and a pencil.
2. Place the "Occupations List Chart" where it can be seen by everyone.
3. Then ask them to follow the directions and complete the sort (allow about 30 minutes).
4. After everyone has finished the sort say:
"Now I want you to look at Step Three and decide on the one job characteristic that is most important to you and the one that is least important (allow two or three minutes)."

Discussion:

1. What job characteristic was most important to you?

2. What job characteristic was least important to you?
3. What are some other personal characteristics worth considering that were not mentioned?

ACADEM
Occupational Exploration
Activity 5

NANO
(Name an Occupation)

Goal:

For each person to have a better understanding of occupational groupings.

Materials:

"Occupational Groups Chart," paper and pencils.

Procedures:

1. Divide the group into two equal teams.
2. Place the "Occupational Groups Chart" where everyone can see it.
3. Say: "This chart is a way of arranging occupations by groups and levels of education needed to enter the occupation. As we read through it, you will notice that many occupations may fit in more than one group. There are thousands of occupations and this process of forcing them into groups makes them more manageable."
4. Give one member of each team three pieces of paper and a pencil.
5. Assign the Business Contract group to one team and the Cultural group to the other.

6. Now say: "Write the name of the occupational group which was assigned to you at the top of one sheet of paper. Then divide the remainder of the page into three equal sections. Mark the top section Level I, the middle section Level II, and the bottom section Level III. When I tell you to begin, each team will have about five minutes to think of as many occupations as possible for each level of the group. Write the occupations on the sheet of paper. Any questions? Ready, begin!"
7. After five minutes instruct the teams to stop.
8. Assign the Industrial-Mechanical group to one team and the Outdoor team to the other.
9. Then say: "We are going to do the same thing for these occupational groups. Write the name of the group at the top of another sheet of paper and divide the sheet into three levels. Remember, you will have about five minutes to think of occupations for this group. Ready, begin!"
10. After five minutes, instruct the teams to stop.

11. Assign the Scientific group to one team and the Service group to the other. Repeat the same procedures for another five minutes.
12. Now ask each team to read their examples for the occupational groups. The examples can be discussed and new examples added.

Discussion:

1. Was it difficult to think of examples for each group and level? Why?
2. Why is it difficult to fit some occupations into one specific group?
3. Which occupational group or groups has the most appeal to you right now? Which levels are most appealing?

ACADEM
Occupational Choice
Activity 6

Friendly Persuasion I

Goals:

For each person to have a better understanding of:

1. the personal reasons for choosing an occupation
2. peer reactions to the occupational choice.

Materials:

Paper and pencils.

Procedures:

1. Distribute a piece of paper and a pencil to each person.
2. Say: "In this activity you are to declare an occupation and persuade the rest of the group that the choice is appropriate for you. Using what you know about yourself and occupations, take about three minutes to choose an occupation and write at least three reasons why this would be appropriate for you. Be specific with your reasons. When we finish, you will each have about one minute to persuade the group that the choice is appropriate."

3. After about three minutes say: "Now, one at a time, each of you will have about one minute to: a) name the occupation you have chosen, b) briefly describe the occupation, and c) give your reasons why this occupation would be a good choice for you. After each of you finishes, the rest of the group will have two minutes to give you feedback. The members of the group must give specific reasons for agreeing or disagreeing with your choice."
4. Begin the process and continue until every person has made a choice and received feedback. Hold carefully to the time limits so everyone will have an opportunity to participate.

Discussion:

1. What were the most common personal reasons for choosing occupations?
2. What occupation would you choose if you couldn't have your first choice?
3. What occupation would you definitely avoid? Why?

ACADEM
Educational Exploration
Activity 7

GAM
(Group a Major)

- Goal: For each person to have a better understanding of available educational alternatives.
- Materials: "Major Fields of Study Chart," paper and pencils.
- Procedures:
1. Divide the group into two equal teams.
 2. Place the "Major Fields of Study Chart" where everyone can see it.
 3. Give one member of each team three pieces of paper and a pencil.
 4. Assign the Business Contact group to one team and the Cultural group to the other.
 5. Now say: "Write the name of the occupation which was assigned to you at the top of one sheet of paper. When I tell you to begin, each team will have about five minutes to choose the major fields of study from the chart that would permit entrance into your assigned occupational group. Write your choices on the sheet of paper. Any questions? Ready, begin!"

6. After five minutes instruct the teams to stop.
7. Assign the Industrial Mechanical group to one team and the Outdoor group to the other.
8. Then say: "We are going to do the same thing for these occupational groups. Write the name of the group at the top of another sheet of paper. Remember, you will have about five minutes to choose major fields of study that will permit entrance into these groups. Ready, begin!"
9. After five minutes instruct the teams to stop.
10. Assign the Scientific group to one team and the Service group to the other. Repeat the same procedures for another five minutes.
11. Now ask each team to read the major fields of study they selected for the occupational groups. The selections can be discussed and other selections added.

Discussion:

1. Was it difficult to select major fields of study for the groups? Why?

2. What is the relationship between major fields of study and occupations?
3. Which major field of study has the most appeal to you right now?

ACADEM
Educational Choice
Activity B

Friendly Persuasion II

Goals:

For each person to have a better understanding of:

1. the personal reasons for choosing a major field of study
2. peer reactions to the choice of a major field of study.

Materials:

Paper and pencils.

Procedures:

1. Distribute a piece of paper and a pencil to each person.
2. Say: "In this activity you are to declare a major field of study and to persuade the rest of the group that the choice is appropriate for you. Using what you know about yourself, occupations, and major fields of study, take about three minutes to choose a major field of study and write at least three reasons why this would be appropriate for you. Be specific with your reasons. When we finish, you will each have about one minute to persuade the group that your choice is appropriate."

3. After about three minutes say: "Now, one at a time, each of you will have about one minute to: a) name the major you have chosen, b) and give your reasons why this major would be a good choice for you. After each of you finishes, the rest of the group will have two minutes to give you feedback. The members of the group must give specific reasons for agreeing or disagreeing with your choice.
4. Begin the process and continue until every person has made a choice and received feedback. Hold carefully to time limits so everyone will have an opportunity to participate.

Discussion:

1. What were the most common reasons for choosing a major field of study?
2. What major would you choose if you couldn't have your first choice?
3. What major would you definitely avoid? Why?

ACADEM
Implementation
Activity 9

Strength Bombardment

Goal:

For each person to have a better understanding of unique strengths necessary for implementing decisions.

Materials: None.

Procedures:

1. Be sure the group is seated in a circle.
2. Say: "During this activity each of you will have the opportunity to both give and receive positive feedback from everyone else. We will begin with the person on my left. I want everyone to identify at least one strength of (say person's name). The strength can be a skill, attitude, interest or ability. It's alright if several of you identify the same strength. Knowing that several people agree on the same strength can be important. After (say person's name) has received feedback from all of you, we will move to the next person on the left."
3. Ask the second person to your left to begin the process. Continue around the circle in

a clockwise direction until everyone has identified at least one strength.

4. Then identify the second person on your left to receive feedback. Beginning with the third person on your left and continuing clockwise around the circle, ask everyone to identify at least one strength.
5. Continue this process until everyone in the group has received feedback.

NOTE: Depending on the mood of the group, you may wish to end the session without further discussion and evaluation.

Discussion:

1. What do you feel is the next action you should take in your career decision-making process?
2. How might your unique strengths relate to future career decisions?
3. Do you feel you have strengths that were not identified? What are they?
4. Do you feel you have grown in any way from participating in ACADEM? In what ways?

APPENDIX C
SIGI POSTTREATMENT QUESTIONNAIRE

Directions:

Circle the number which best describes your feeling to the question.

	Section			
	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Not Certain</u>	<u>Agree</u> <u>Strongly Agree</u>
1. The SIGI guidance activity provided me with helpful information on occupations.	1	2	3	4 5
2. The SIGI guidance activity aided me in choosing an occupation.	1	2	3	4 5
3. The SIGI guidance activity helped me to clarify my values.	1	2	3	4 5
4. The SIGI guidance activity aided me in my academic planning.	1	2	3	4 5
5. The SIGI guidance activity helped me to develop decision-making skills.	1	2	3	4 5
6. The instructions I received during the SIGI guidance activity were clear.	1	2	3	4 5
7. I enjoyed the SIGI guidance activity.	1	2	3	4 5
8. Other students would benefit from the SIGI guidance activity.	1	2	3	4 5

As you answer the following questions on SIGI please keep in mind the tasks and procedures you were involved in during the values, locate, compare, planning, and strategy sections.

9. I have a clearer idea of the satisfactions I want from an occupation. (values section) 1 2 3 4 5

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Not Certain</u>	<u>Agree</u>	<u>Strongly Agree</u>
10. I was aided in determining which occupations I want to explore in more depth. (locate section)	1	2	3	4	5
11. I have a better idea of the advantages and disadvantages of different occupations. (compare section)	1	2	3	4	5
12. I have more knowledge of the necessary steps for entering the occupation in which I am interested. (planning section)	1	2	3	4	5
13. I have a better understanding of how to combine all the information I have on occupations and myself for the purpose of making a reasonable career choice. (strategy section)	1	2	3	4	5
14. The BE 100 discussions which paralleled my interaction with SIGI were helpful.	1	2	3	4	5

APPENDIX D

ACADEM POSTTREATMENT QUESTIONNAIRE

Section

Directions:
Circle the number which
best describes your response
to the question.

	Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree
1. The ACADEM group counseling activity provided me with helpful information on occupations.	1	2	3	4	5
2. The ACADEM group counseling activity aided me in my occupational choice.	1	2	3	4	5
3. The ACADEM group counseling activity aided me in clarifying my values.	1	2	3	4	5
4. The ACADEM group counseling activity aided me in my academic planning.	1	2	3	4	5
5. The ACADEM group counseling activity helped me to develop decision-making skills.	1	2	3	4	5
6. The instructions I received during the ACADEM group counseling activity were clear.	1	2	3	4	5
7. I enjoyed the ACADEM group counseling activity.	1	2	3	4	5
8. Other students would benefit from the ACADEM group counseling activity.	1	2	3	4	5

As you answer the following questions please keep in mind the tasks and procedures you were involved in during "The Me Tree," "The Millionaire," the "Occupational Preference Sort," "Name an Occupation," "Friendly Persuasion," "Group A Major" and "Strength Bombardment."

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Not Certain</u>	<u>Agree</u>	<u>Strongly Agree</u>
9. I have a better understanding of my abilities and interests. (The Me Tree)	1	2	3	4	5
10. I have a better understanding of personal criteria for selecting an occupation. (The Millionaire)	1	2	3	4	5
11. I have a better understanding of different occupational areas. (Name An Occupation and Occupational Preference Sort)	1	2	3	4	5
12. I have a better understanding of my personal reasons for choosing an occupation. (Friendly Persuasion I)	1	2	3	4	5
13. I have a better understanding of different educational majors. (Group A Major)	1	2	3	4	5
14. I have a better understanding of my personal reasons for choosing a major field of study. (Friendly Persuasion II)	1	2	3	4	5
15. I have a better understanding of my strengths. (Strength Bombardment)	1	2	3	4	5

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BIOGRAPHICAL SKETCH

K Richard Pyle was born on January 26, 1939 in Brazil, Indiana, the son of Reverend Floye Evans Pyle and Matilda Chapman Pyle. After spending his public school years in the small central Illinois communities of Arthur and Chrisman, Mr. Pyle attended William Jewell College. He received his Bachelor of Arts degree in history in June, 1961.

Following his graduation, Mr. Pyle enrolled in graduate school at Illinois State University, where he received his Master's degree in guidance and counseling. In September of 1962 he accepted the position of Director of Guidance for the LeRoy, Illinois public school system. While at LeRoy, he also taught psychology and coached wrestling and track. After two years of public school work, Mr. Pyle accepted a Residence Hall Counselor position at DePauw University in Greencastle, Indiana. While at DePauw he met his wife, the former Betty Boyd. Married in the fall of 1965, the Pyles soon thereafter were accepted as Peace Corps Volunteers assigned to a rural parish in Jamaica. From June of 1966 to June of 1968, Mr. Pyle trained

Jamaican teachers in methods and techniques of guidance. His community development work included literacy training, service on many civic committees, and organizing and directing recreation programs.


The Pyles were asked by the Peace Corps to aid in the training of Peace Corps Volunteers to Jamaica upon their return to the U.S. in 1968. After the completion of his training responsibilities in San Diego, Mr. Pyle accepted a position as Resident Dean at the University of California-San Diego. The following year, Mr. Pyle returned to work with the Peace Corps as a Counseling Psychologist at the Peace Corps Training Center in Ponce, Puerto Rico. His professional responsibilities included counseling and assessment of Peace Corps Volunteers with respect to their work overseas. Toward the end of his three years in Puerto Rico, Mr. Pyle served as the Director of the Training Center.

In June of 1972 the Pyles returned to the U.S. with their two small children, Kimberly and Matthew. Arriving in Gainesville with the goal of obtaining his Doctor of Philosophy degree, Mr. Pyle accepted a position at Buchholz High School, where he served as Director of Counseling while taking courses toward his degree. During the two years at Buchholz, Mr. Pyle developed and implemented a teen-peer facilitator program which soon after its


inception was designated the best drug abuse program in the state by the National Institute on Drug Abuse.

During the 1974-75 school year, while completing his doctoral course work, Mr. Pyle worked as a research assistant in the development of guidelines for student personnel services for Florida Vocational-Technical schools. In the fall of 1975, he accepted a position at Santa Fe Community College, Gainesville, Florida, where, in addition to counseling, he has been teaching behavioral science and tennis.


I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Robert O. Stripling, Chairman
Distinguished Service Professor
of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

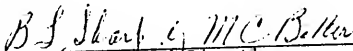

Elias L. Tolbert
Associate Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


John M. Nickens
Assistant Professor of Educational
Administration

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

March, 1976


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